Bill Acceptor
DBV-30X-SU
DBV-30X-SD

Note

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Issue 03/2006

Preface

Thank you for purchasing the Japan Cash Machine Bill Accepter DBV-30X-SU/DBV-30X-SD (here after referred to as the “DBV-30X unit”). Please read this manual carefully as it explains, step by step, how to use the DBV-30X correctly and safely. Be sure to read this manual and any related materials thoroughly to understand the correct operation and functions of this unit.

Documentation Conventions

The list below describes the documentation convertions used in this manual.

	This icon indicates situations where slight bodily injury or equipment damage can occur.
	This icon indecates important information or procedures that must be followed for correct and risk-free unit operation.
	This icon indicates useful or recommended supplemental information.
1), 2)	This indicates steps ina procedure. Be sure to perform these steps in the order given.
*	This indicates useful or important supplemental inforamation

CE Marking Notes

The DBV-301-SU is CE marked products.

■Complies with the following Standard.

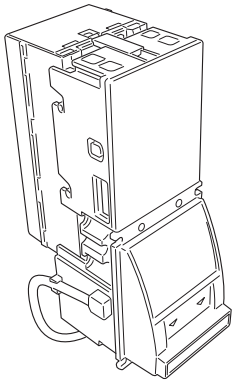
EN61000-6-1: 2001 EN61000-4-2: 1995+A1 : 1998+A2 : 2001
EN61000-4-3 : 2002+A1 : 2002

EN61000-6-3 : 2001 EN55022 : 1998 (ClassB)

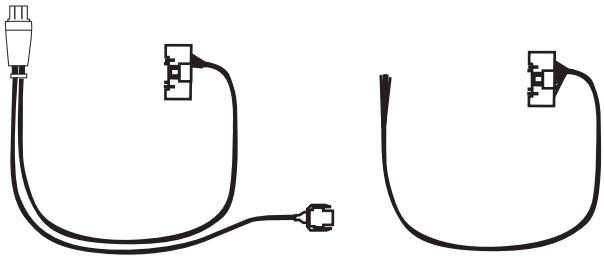
Package Contents

The DBV-30X unit's packing box contains theitems listed below. Please check to confirm that all items shown below have been included.

■DBV-30X-SX unit (1)



■Harness (1)
MDB Harness (EDP#: 118761) or
Optional Harness (EDP#: 118746)



MDB Harness

Optional Harness

Model and Serial No. Information

To identify your DBV-30X unit's model and serial number, see the metallic label attached to the left side of DBV-30X unit.

MODEL DBV-301-SU-USA2-2111-D3
SERIAL NO.* * * * * * * * * *
DC 24-36V 0.9-0.6A
JAPAN CASH MACHINE CO., LTD.
MADE IN JAPAN

Table of Contents

CHAPTER 1 Model Numbers and Specifications

CHAPTER 2 Installation and Operation

CHAPTER 3 Disassembly Instruction

CHAPTER 4 Trouble Shooting and Diagnostics

CHAPTER 6 Exploded View & Parts List

see Part Manual

CHAPTER 7 Optional Bill Recycler Unit (RC-10)

Bill Acceptor

DBV-30X Service Manual

Chapter 1

Model Numbers & Specifications

Issue 08/2007

JCM GLOBAL

1-1. Precautions

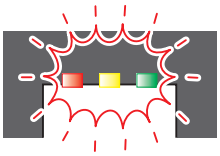
- Do not insert a torn, folded, or wet bill, as this may cause bill jam inside the unit.
- Do not expose the unit to water. The unit contains several precision electronic devices which can be damaged if water or any liquid is sprayed or spilled into the unit.
- Do not install the unit in a dusty environment. Dust may affect the sensor performance.
- When installing the unit, be sure to turn the power OFF.
- When installing the DBV-30X unit, tighten mounting nuts until snug. DO NOT overtighten.
- To avoid the electrical hazards and equipment damage, be sure to use only specified voltage.

1-2. Main Features

The DBV-30X has the following features.

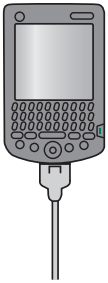
1-2-1. Intelligent 3-way LED for Easy field Diagnosis

DBV-30X unit has intelligent 3-way LED. It blinks depending on the error. Color of LED and the number of blinking shows the error type.



1-2-2. Palm Programmable

Palm can be connected to DBV-30X unit to download the software program, execute the diagnostic test and get the acceptance log data. For details about connecting to Palm, refer to 5-3. Using Palm.



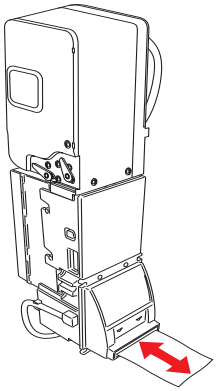
1-2-3. Built in Auditing Functions

DBV-30X unit has the following built-in functions.

- Jam Rate
- Acceptance Rate
- Internal Diagnostics
- Money Auditing

1-2-4. Optional Bill Recycler (RC-10)

DBV-301-SU unit can attach an optional bill recycler unit (RC-10). It is the first bill acceptor for the vending industry with built-in intelligence for recycling of notes.



1-3. DBV-30X Naming Composition

1-3-1. Model

DBV - 3 0 1 - SU
(1) (2) (3) (4) (5)

(1) Model Name

(2) Series Name

(3) CPU Board Type
0: JCM Standard

(4) Power supply
0: DC12V
1: DC24V
2: AC117V

(5) Stacker Type
SU: Upward vertical stacking
SD: Downward vertical stacking

1-3-2. Type

* * * - * * * * * * - **
(6) (7) (8) (9) (10) (11) (12)

(6) Country Code *1
3-digit ISO code
Ex RUS - Russia

(7) Cash Box Capacity
2: 200 Notes Cash Box
3: 300 Notes Cash Box
5: 500 Notes Cash Box
A: 1000 Notes Cash Box

(8) Bezel Type
1: JCM Standard Bezel (SU/SD)
2: Snack Mask (SU/SD)
3: Euro Bezel (SU)
4: Euro Bezel (SD)

(9) Guide Width

1: 67 mm

3: 71 mm

4: 73mm

(10) Cash Box Type

1: Upward bill ejection box

(11) Recycle Type (Optional)

0: without bill recycler unit

1: with bill recycler unit

(12) Interface Type *1

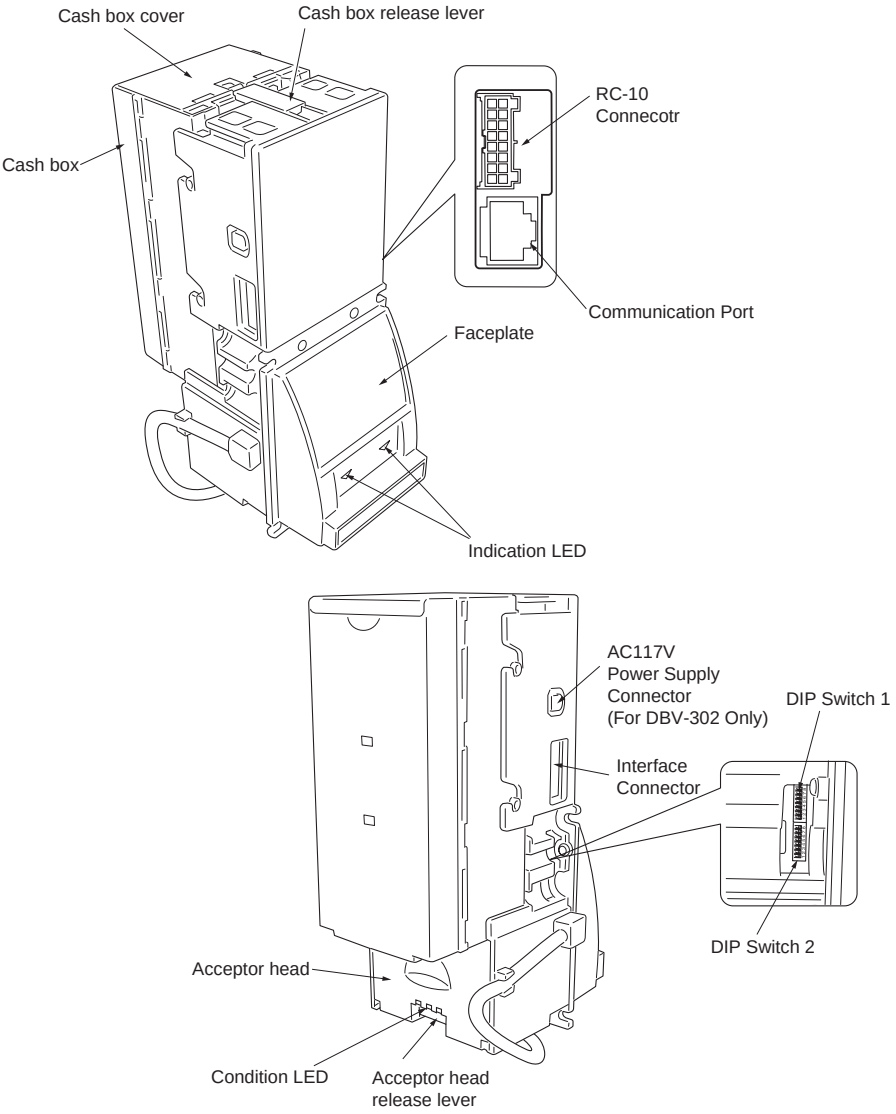
D3: ID-0D3 (MDB interface)

03: ID-003 (Serial interface)

44: ID-044 (OEM interface)

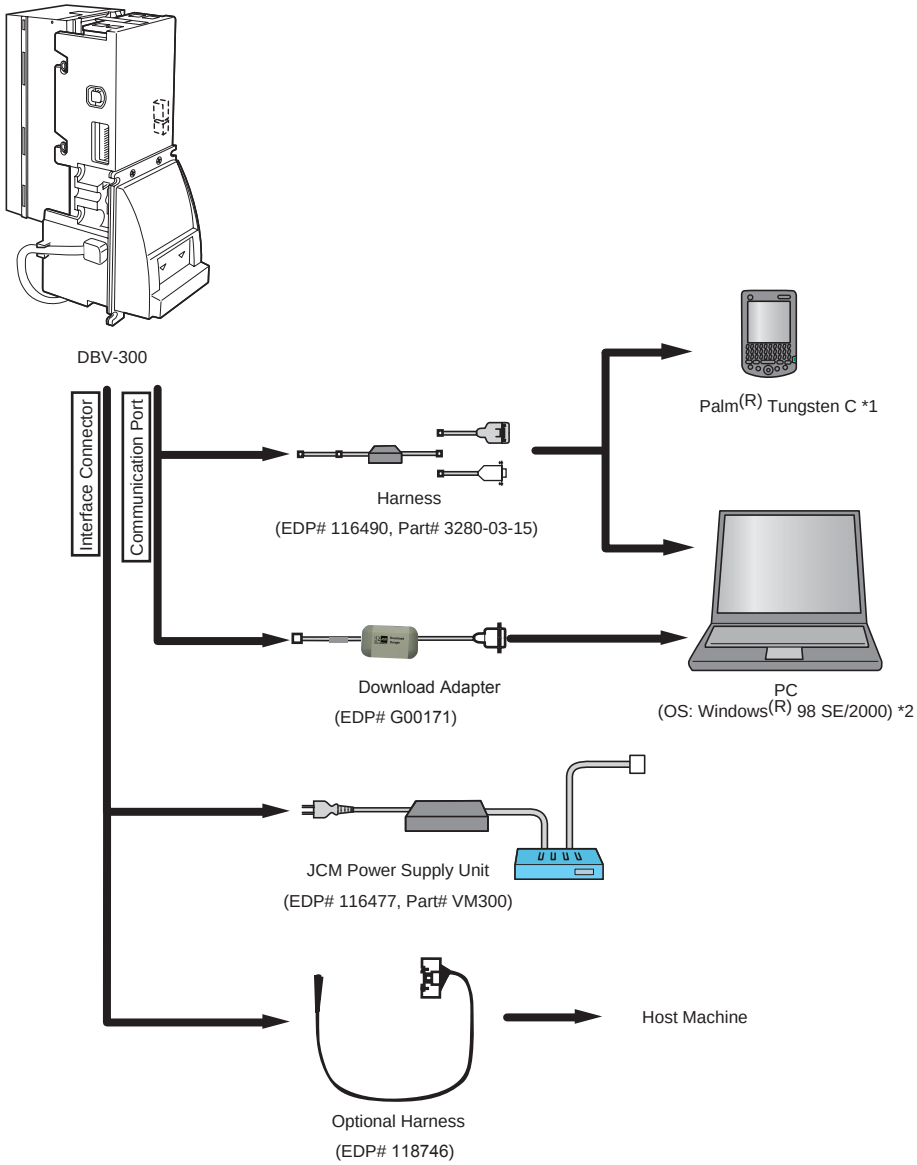
*1 For another interface, please contact JCM.

1-4. Component Names



1-5. System Configuration

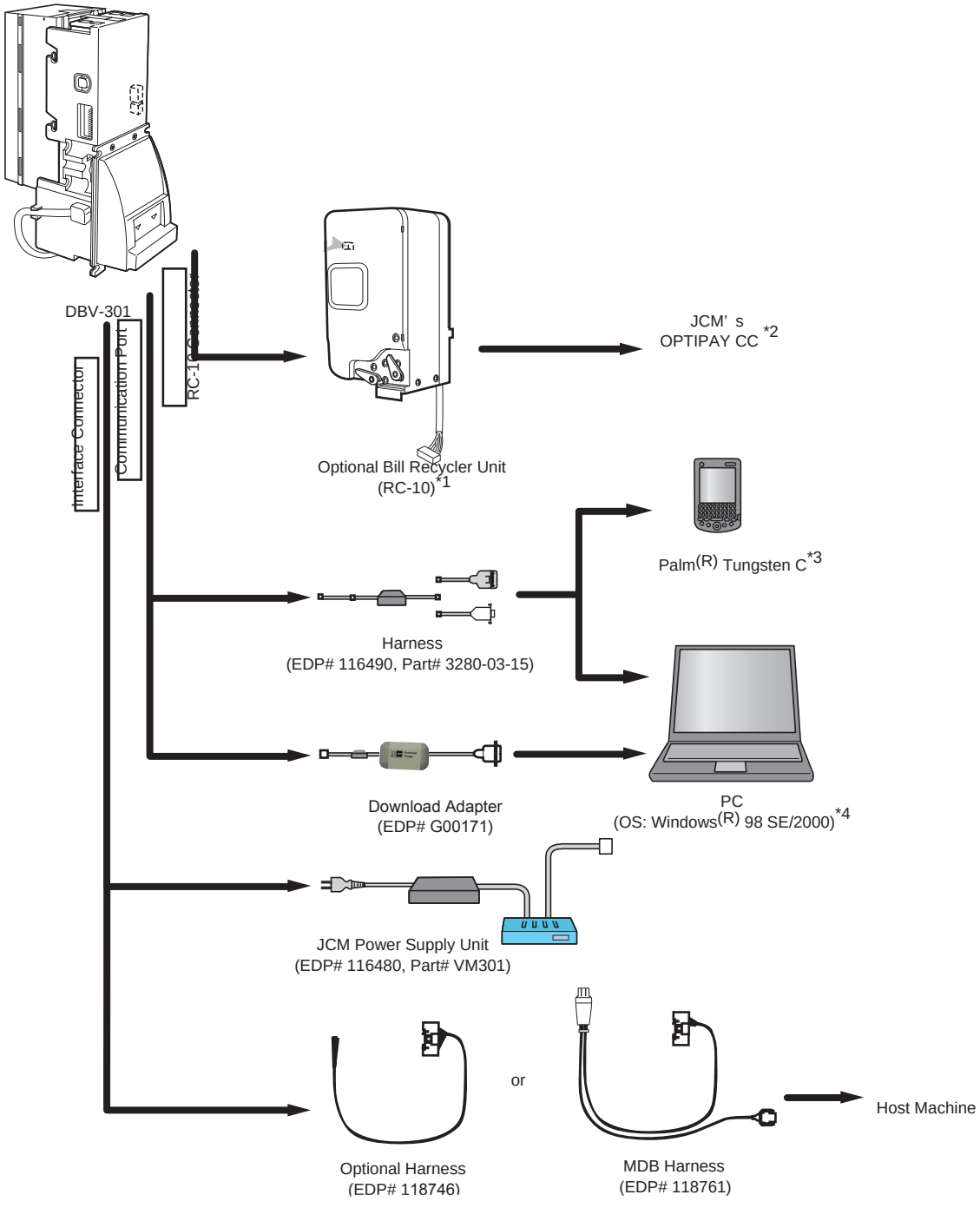
1-5-2. DBV-300 System Configuration



*1 Palm can be connected to download a software, perform the diagnostics and collect the accepting log data.

*2 PC can be connected to download software and perform an adjustment. For details about software downloading and adjustment, refer to Chapter 5.

1-5-2. DBV-301 System Configuration



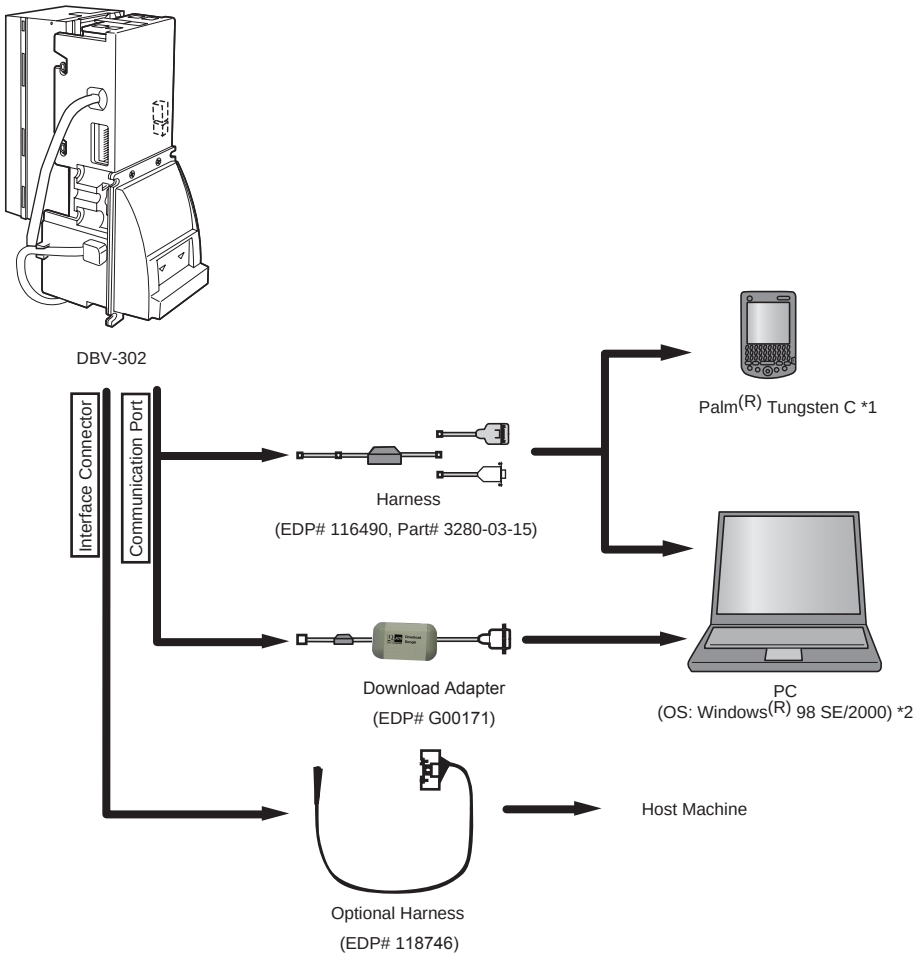
*1 The optional bill recycler unit (RC-10) can be installed with only DBV-301 unit which is using MDB interface, and which is connecting with JCM's Coin Changer (OPTIPAY CC). For details about RC-10 unit, refer to Chapter 7.

*2 For details about JCM's Coin Changer (OPTIPAY CC), please contact JCM.

*3 Palm can be connected to download a software, perform the diagnostics and collect the accepting log data.

*4 PC can be connected to download software and perform an adjustment. For details about software downloading and adjustment, refer to Chapter 5.

1-5-3. DBV-302 System Configuration



*1 Palm can be connected to download a software, perform the diagnostics and collect the accepting log data.

*2 PC can be connected to download software and perform an adjustment. For details about software downloading and adjustment, refer to Chapter 5.

1-6. Specifications

1-6-1. Technical Specifications

Bill Accepted	Width (min. 65 - max. 72 mm) *1 Length (min. 120 - max. 160 mm)
Insertion Direction	Refer to the software Information Sheet
Acceptance Rate	Refer to the software Information Sheet
Processing Speed	Approx. 2 seconds (from bill insertion to credit signal output) Approx. 3 seconds (from bill insertion to bill stack completion)
Cash Box Capacity	200 Notes Cash Box 300 Notes Cash Box 500 Notes Cash Box 1,000 Notes Cash Box
Interface	Pulse/MDB *2/Serial
Escrow	1 Bill
LED	Condition LED (Red/Yellow/Green) (Rear) Indication LED (Green) (Front)

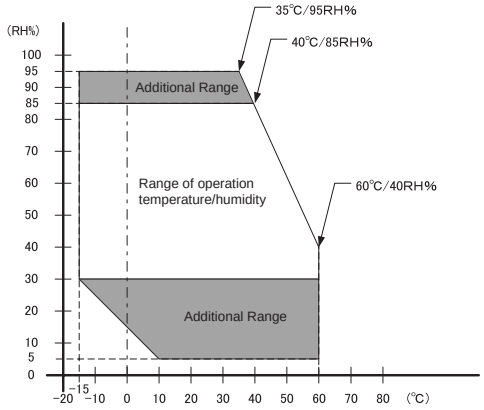
*1 Bills narrower than 65 mm (width) or wider than 71mm (width) will need special bill guides. Contact your JCM sales representative for details.

*2 When using MDB interface, the optional bill recycler unit (RC-10) can be attached. For details about RC-10 unit, refer to Chapter 7.

1-6-2. Environmental Specifications

Operation Temperature *1	-15°C to 60°C
Storage Temperature	-20°C to 60°C
Operation Humidity *1	+15% to 95% RH (no condensing)
Storage Temperature	+15% to 95% RH (no condensing)
Light disturbance	Direct sunlight shall be avoided
Installation	Indoor and Outdoor (not exposed to wind and weather)

*1 Be sure to satisfy the following temperature humidity conditions.



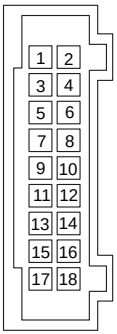
1-6-3. Electrical Specifications

	DBV-300	DBV-301	DBV-302
Power Supply	DC12V (+5%) 2.5A (Recommended)	DC24V (+5%) 2.5A (Recommended)	AC117V AC90V to AC123V (50/60Hz)
Power Consumption	Standby: 0.3A In Operation: 0.6A (Max: 1.5A)	Standby: 0.2A In Operation: 0.4A (Max: 0.9A)	Standby: 0.07A In Operation: 0.16A (Max: 0.45A)

1-6-4. Structural Specifications

Mounting	Holizontal Mounting
Weight	Approx. 1.2kg (with 200 Note Cash Box)
Outline Dimentions	Refer to 1-9. Dimensions

1-7. Interface Connector and Pin Assignment



Header(Dual Light Angle Type): 702290-3007 (US MOLEX)
Recommended Housing: 70066-0113 (US MOLEX)
Clip (Dual Type): 70013-0018 (US MOLEX)
Terminal: 70058-0204 (US MOLEX)
Recommended Wire: String AWG#24 to 26

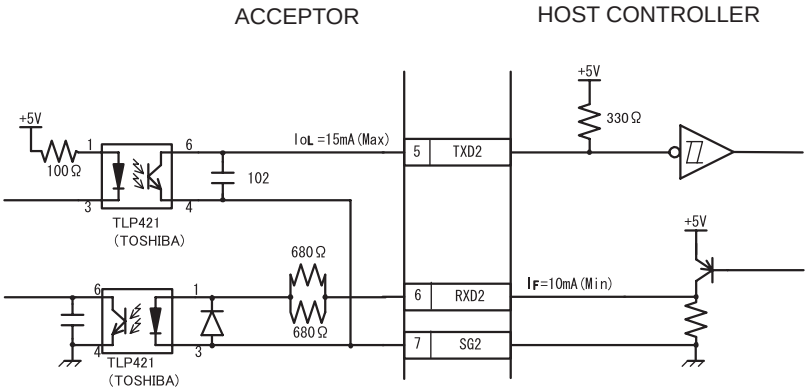
1-7-1. When using ID-0D3 (MDB) Interface

■DBV-301

Pin No.	Signal Name	I/O *1	Function
1	VDD1		DC24V
2	VSS1		GND
3	NC		Not Connected
4	NC		Not Connected
5	TXD2	OUT	Photo-coupler: Output Signal Line from Bill Acceptor
6	RXD2	IN	Photo-coupler: Input Signal Line from Bill Acceptor
7	SG2		Photo-coupler: Signal Ground
8	NC		Not Connected
9	NC		Not Connected
10	NC		Not Connected
11	NC		Not Connected
12	NC		Not Connected
13	NC		Not Connected
14	NC		Not Connected
15	NC		Not Connected
16	NC		Not Connected
17	NC		Not Connected
18	NC		Not Connected

*1 I/O (input/output) is the term from bill acceptor's side.

◆Photo Coupler-isoration Input/Output Circuit



1-7-2. When using ID-003 (Serial) Interface

■DBV-300

Pin No.	Signal Name	I/O *1	Function
1	NC		Not Connected
2	NC		Not Connected
3	VDD		DC12V
4	VSS		DC12V GND
5	TXD2	OUT	Photo-coupler: Output Signal Line from Bill Acceptor *3
6	RXD2	IN	Photo-coupler: Input Signal Line from Bill Acceptor *3
7	SG2		Photo-coupler: Signal Ground *3
8	TXD1	OUT	RS-232C: Output Signal Line from Bill Acceptor *3
9	RXD1	IN	RS-232C: Input Signal Line from Bill Acceptor *3
10	SG		RS-232C/TTL: Signal Ground *3
11	TXD0	OUT	TTL: Output Signal Line from Bill Acceptor *3
12	RXD0	IN	TTL: Input Signal Line from Bill Acceptor *3
13	NC		Not Connected
14	NC		Not Connected
15	NC		Not Connected
16	NC		Not Connected
17	NC		Not Connected
18	NC		Not Connected

*1 I/O (input/output) is the term from bill acceptor's side.

*2 To avoid the electrical hazards and equipment damage, be sure to use only specified voltage.

*3 The serial I/F level (Photo-coupler/RS-232C/TTL) can be selected with DIP Switch 2. For details, refer to 1-8. DIP Switch Setting.

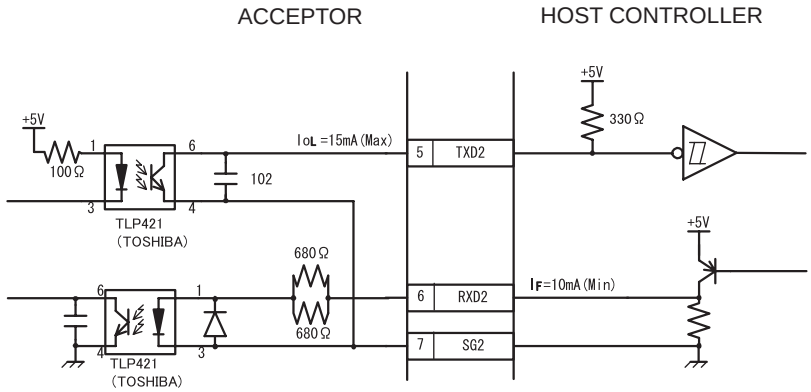
■DBV-302

Pin No.	Signal Name	I/O *1	Function
1	NC		Not Connected
2	NC		Not Connected
3	NC		Not Connected
4	NC		Not Connected
5	TXD2	OUT	Photo-coupler: Output Signal Line from Bill Acceptor *2
6	RXD2	IN	Photo-coupler: Input Signal Line from Bill Acceptor *2
7	SG2		Photo-coupler: Signal Ground *2
8	TXD1	OUT	RS-232C: Output Signal Line from Bill Acceptor *2
9	RXD1	IN	RS-232C: Input Signal Line from Bill Acceptor *2
10	SG		RS-232C/TTL: Signal Ground *2
11	TXD0	OUT	TTL: Output Signal Line from Bill Acceptor *2
12	RXD0	IN	TTL: Input Signal Line from Bill Acceptor *2
13	NC		Not Connected
14	NC		Not Connected
15	NC		Not Connected
16	NC		Not Connected
17	NC		Not Connected
18	NC		Not Connected

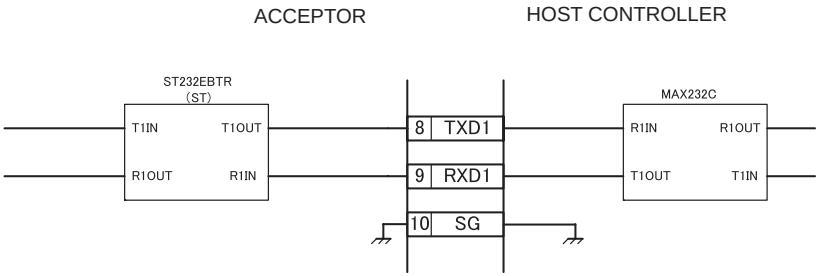
*1 I/O (input/output) is the term from bill acceptor's side.

*2 The serial I/F level (Photo-coupler/RS-232C/TTL) can be selected with DIP Switch 2. For details, refer to 1-8. DIP Switch Setting.

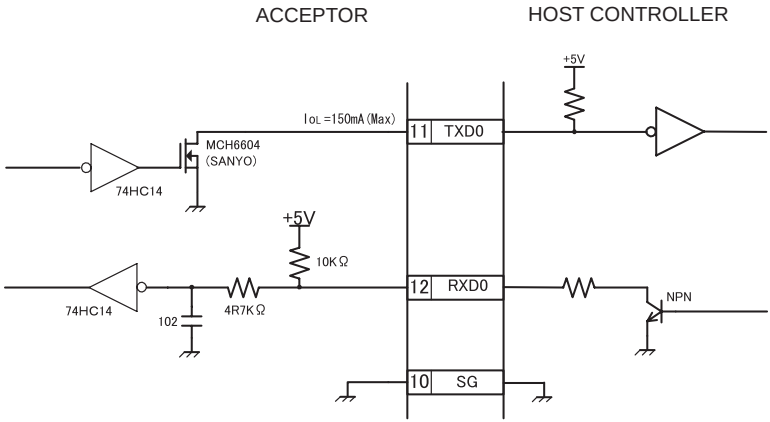
◆Photo-coupler isolation Input/Output Circuit



◆RS-232C Input/Output Circuit



◆TTL Input/Output Circuit



1-7-3. When using ID-002 (Pulse) Interface

■DBV-300

Pin No.	Signal Name	I/O *1	Function	Active
1	NC		Not Connected	
2	NC		Not Connected	
3	VDD1		DC12V	
4	VSS1		DC12V GND	
5	NC		Not Connected	
6	NC		Not Connected	
7	NC		Not Connected	
8	NC		Not Connected	
9	NC		Not Connected	
10	SG		Signal Ground	
11	/VEND	OUT	Accepted denomination Signal	Lo
12	NC		Not Connected	
13	NC		Not Connected	
14	/ENABLE	IN	Bill Inhibit (Hi) / Accept (Lo) Signal	Lo
15	NC		Not Connected	
16	/BUSY	OUT	Acceptor Operating Signal	Lo
17	/ABN	OUT	Acceptor Error Signal	Lo
18	/FULL	OUT	Cash Box Full signal	Lo

*1 I/O (input/output) is the term from bill acceptor's side.

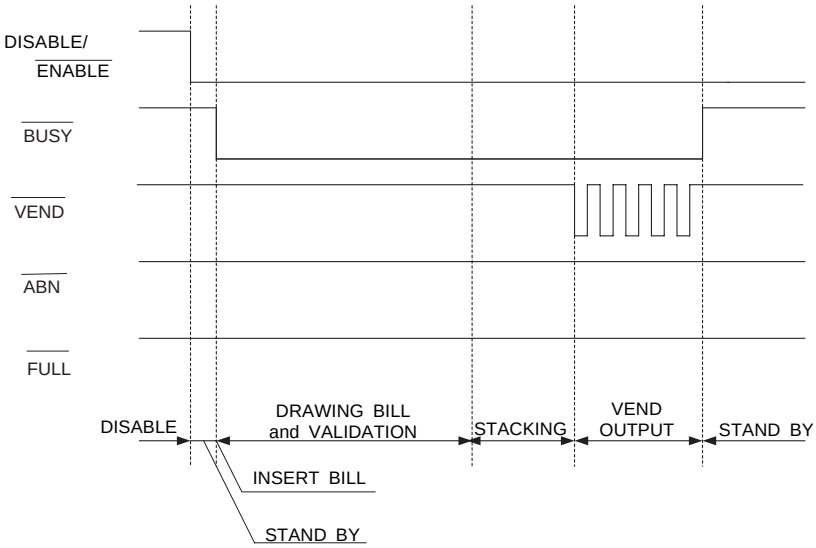
■DBV-301

Pin No.	Signal Name	I/O *1	Function	Active
1	VDD1		DC24V	
2	VSS1		DC24V GND	
3	NC		Not Connected	
4	NC		Not Connected	
5	NC		Not Connected	
6	NC		Not Connected	
7	NC		Not Connected	
8	NC		Not Connected	
9	NC		Not Connected	
10	SG		Signal Ground	
11	/VEND	OUT	Accepted denomination Signal	Lo
12	NC		Not Connected	
13	NC		Not Connected	
14	/ENABLE	IN	Bill Inhibit (Hi) / Accept (Lo) Signal	Lo
15	NC		Not Connected	
16	/BUSY	OUT	Acceptor Operating Signal	Lo
17	/ABN	OUT	Acceptor Error Signal	Lo
18	/FULL	OUT	Cash Box Full signal	Lo

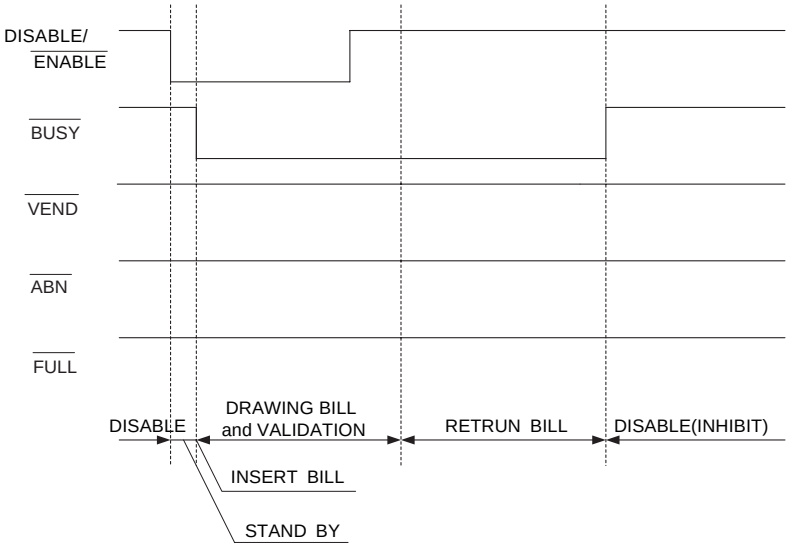
*1 I/O (input/output) is the term from bill acceptor's side.

■Sequence Chart

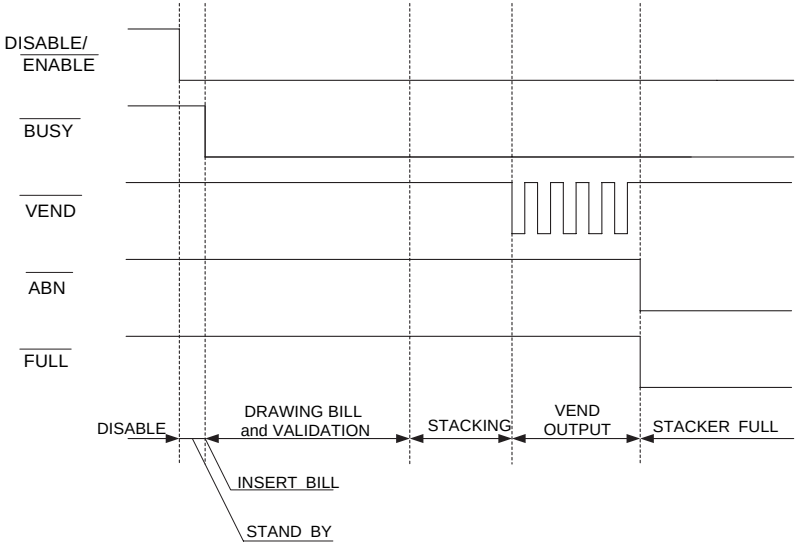
◆Accept Bill



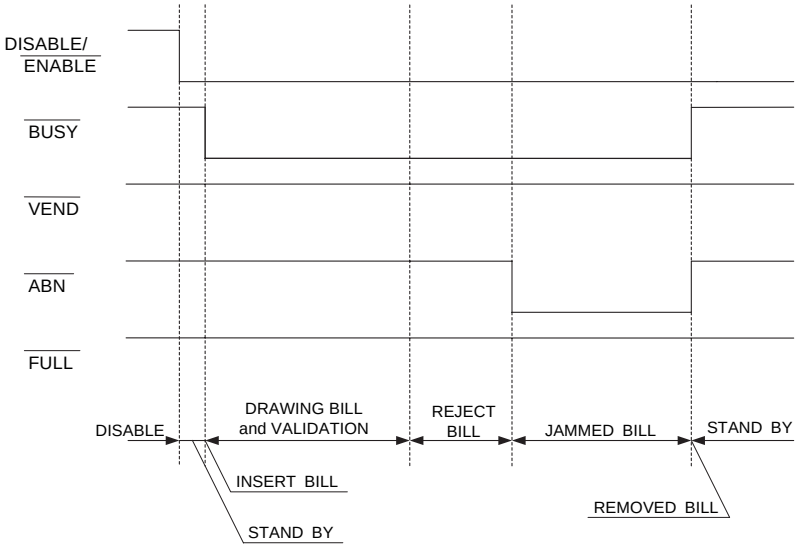
◆Return Bill



◆Stack Bill

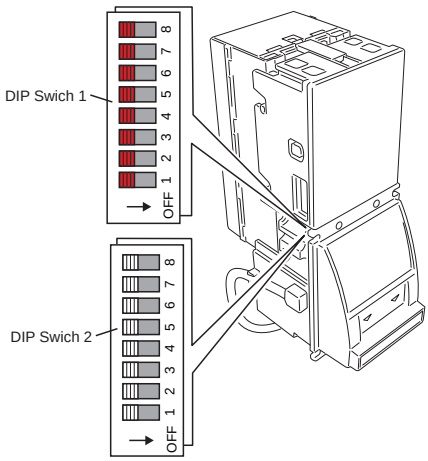


◆Jam Bill



1-8. DIP Switch Settings

DBV-30X unit have 2 DIP Switches (SW 1/SW 2). They are located on the left side of DBV-30X unit. Verify the DIP switch settings before installing the DBV-30X unit. The DIP switch settings are determined by the software. See software specifications provided separately for DIP switch settings of your software.



1-8-1. DIP Switch 1 (SW1)

SW 1 sets the accepted Denomination and mode. Depending on the software, the denomination settings will differ. Refer to the software specifications.

No.	Function	ON	OFF
SW1-1	Denomination 1	Inhibit	Accept
SW1-2	Denomination 2		
SW1-3	Denomination 3		
SW1-4	Denomination 4		
SW1-5	Denomination 5		
SW1-6	Denomination 6		
SW1-7	Denomination 7		
SW1-8	Mode Setting	Test Mode *1	Normal Mode

*1 For details about Test Mode, refer to 4-3. Diagnostics.

1-8-2. DIP Switch 2 (SW2)

DIP Switch 2 sets the Communication method. For details, refer to the software specifications.

◆ID-0D3 (MDB) interface

No.	Function	ON	OFF
SW2-1	-	Always OFF	
SW2-2	-		
SW2-3	-		
SW2-4	-		
SW2-5	-		
SW2-6	-		
SW2-7	-		
SW2-8	-		

◆ID-002 (Pulse) interface

No.		Function
SW2-1	SW2-2	PULSE WIDTH
OFF	OFF	50ms/300ms
ON	OFF	50ms/50ms
OFF	ON	80ms/120ms
ON	ON	150ms/180ms
SW2-3	SW2-4	PULSE COUNT
OFF	OFF	1 Pulse
ON	OFF	4 Pulse
OFF	ON	10 Pulse
ON	ON	20 Pulse
SW2-5	Always OFF	-
SW2-6	Always OFF	-
SW2-7	Always OFF	-
SW2-8	Always ON	-

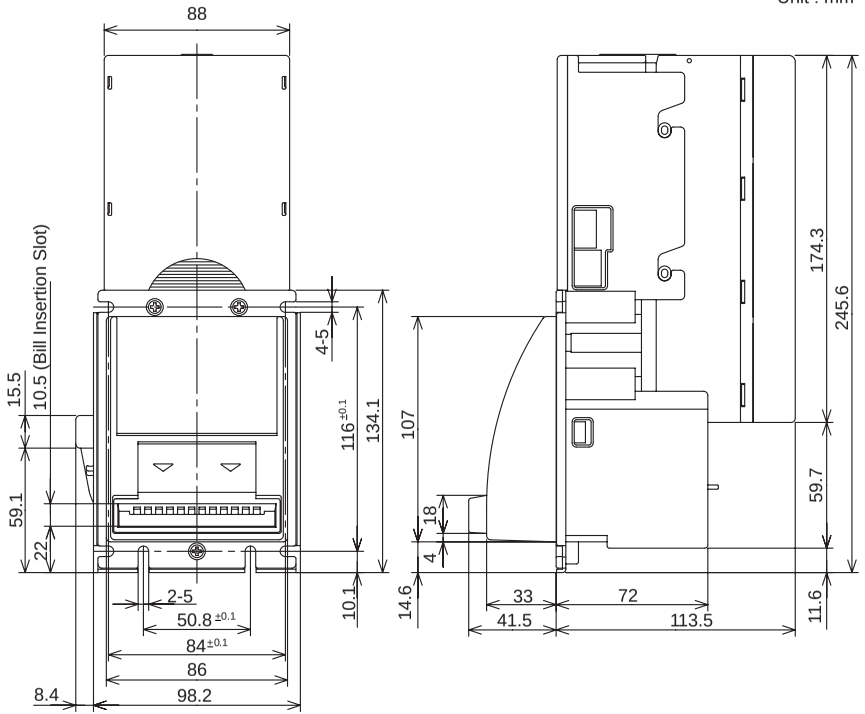
◆ID-003 (Serial) interface

No.		Function
SW2-1	SW2-2	Serial I/F Level
OFF	OFF	Photo-coupler Isoration
ON	OFF	TTL
OFF	ON	RS-232C
ON	OFF	RS-232C
SW2-3	Always OFF	-
SW2-4	Always OFF	-
SW2-5	Always OFF	-
SW2-6	Always OFF	-
SW2-7	Always OFF	-
SW2-8	Always OFF	-

1-9. Dimensions

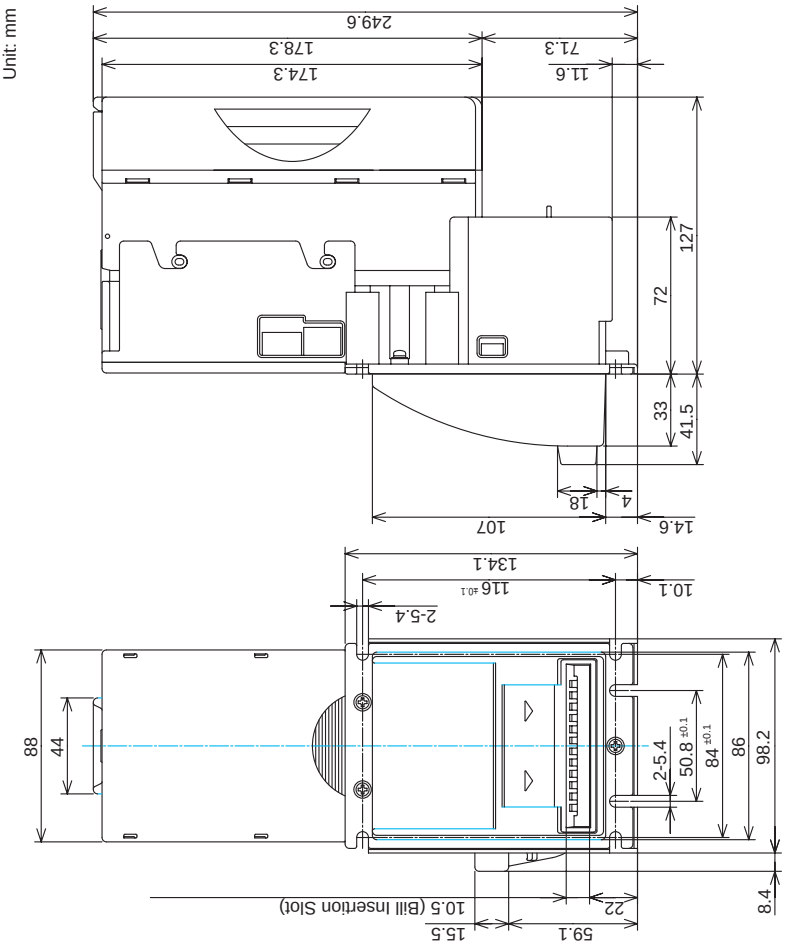
1-9-1. DBV-30X-SU with 200 Notes Cash Box

Unit : mm



1-9-2. DBV-30X-SU with 300 Notes Cash Box

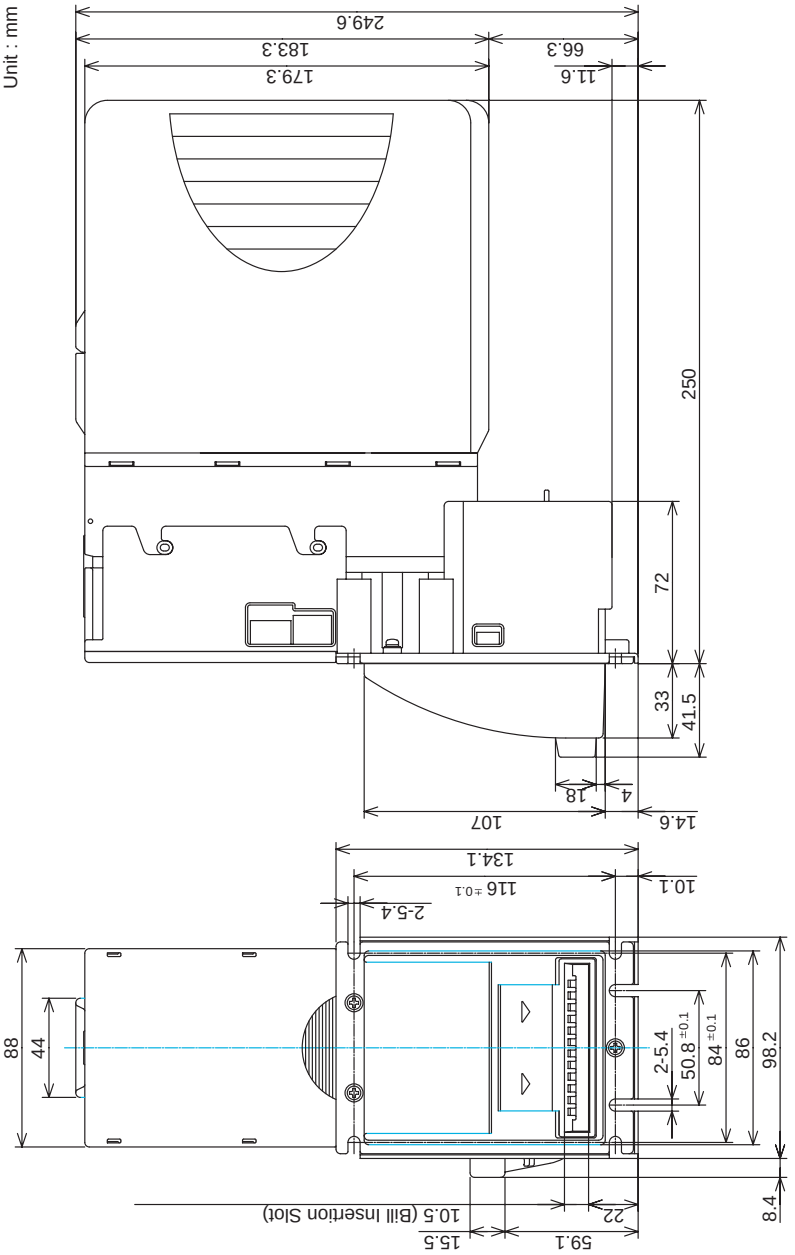
Unit: mm



1-9-3. DBV-30X-SU with 500 Notes Cash Box

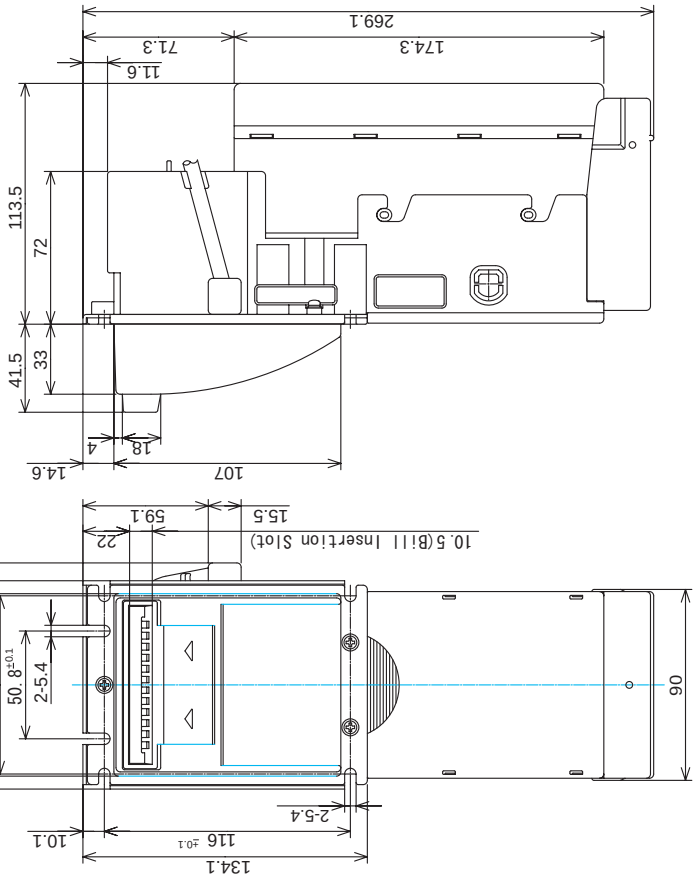
Unit: mm

1-9-4. DBV-30X-SU with 1,000 Notes Cash Box



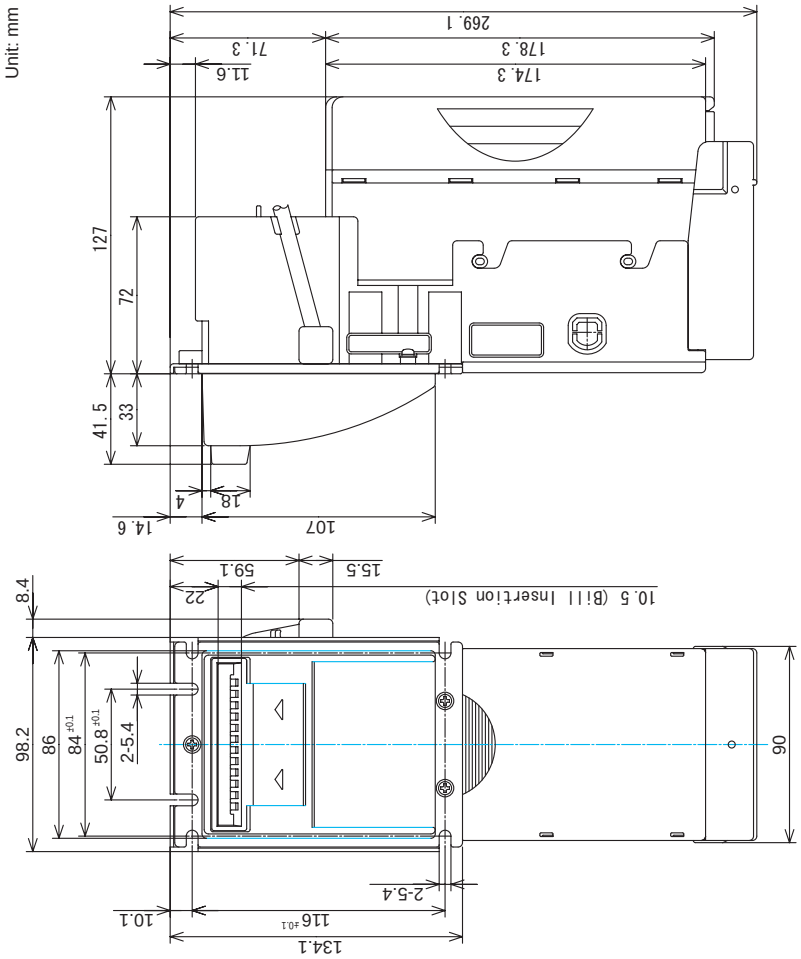
1-9-5. DBV-30X-SD with 200 Notes Cash Box

Unit : mm



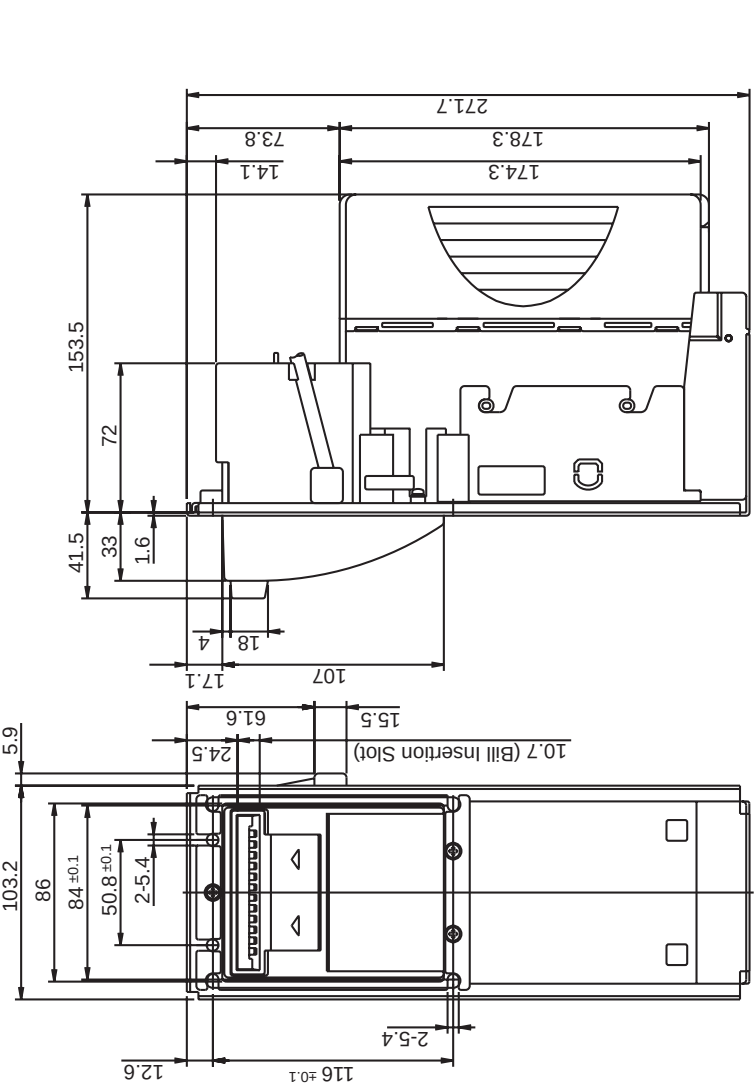
1-9-6. DBV-30X-SD with 300 Notes Cash Box

Unit: mm

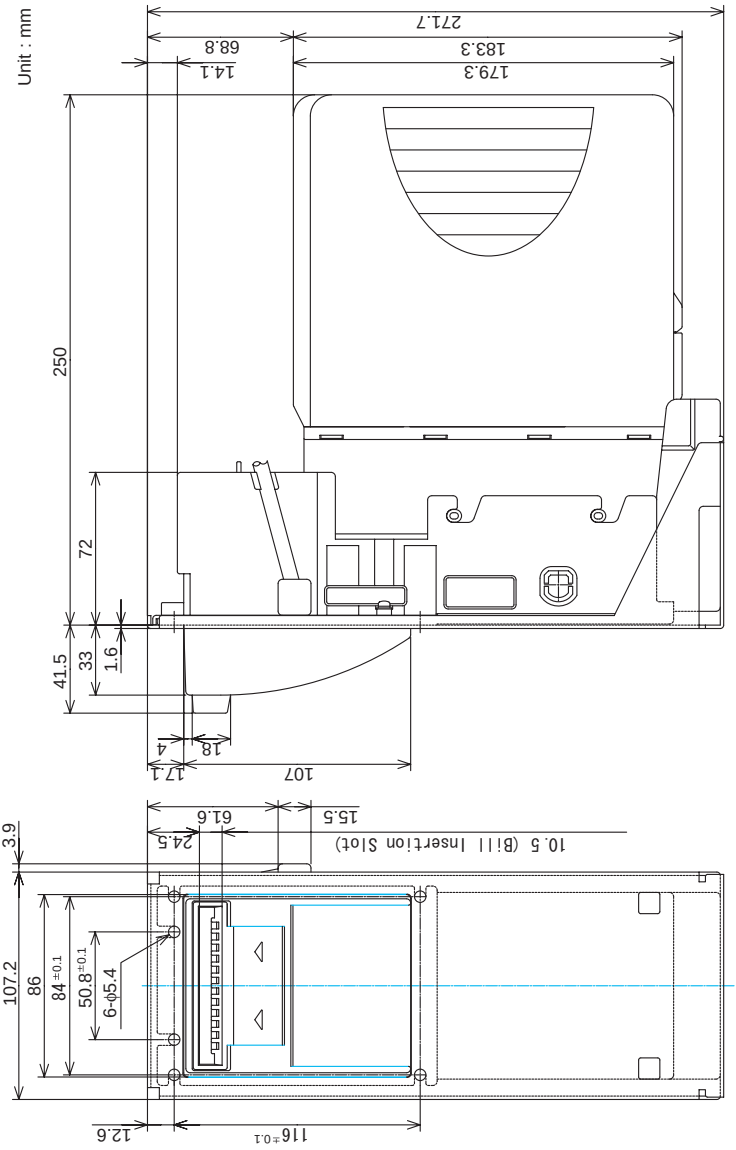


1-9-7. DBV-30X-SD with 500 Notes Cash box and SD Bracket

Unit: mm

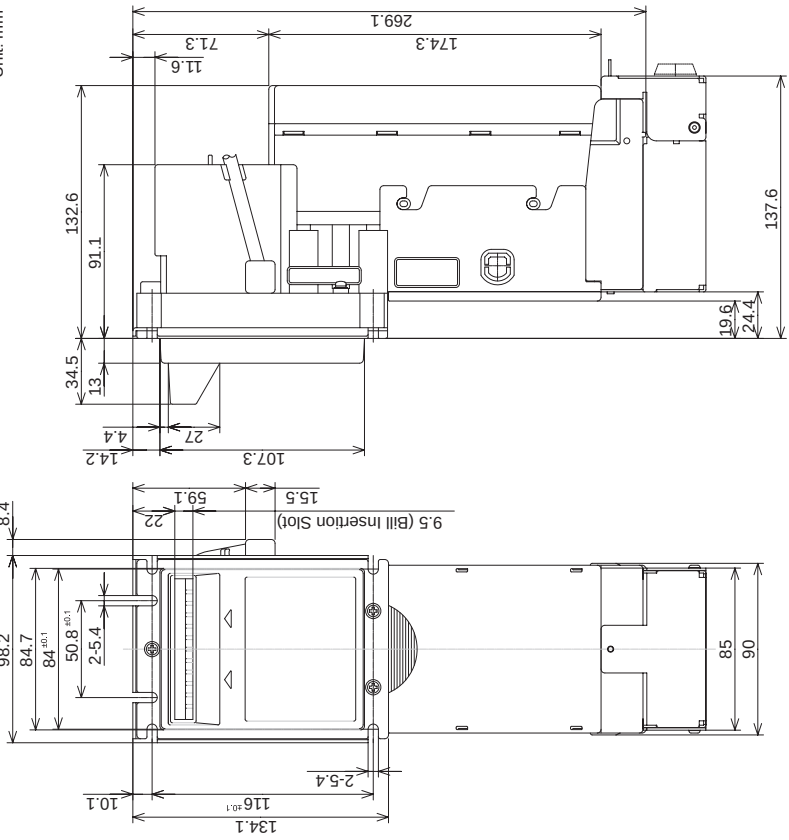


1-9-8. DBV-30X-SD with 1,000 Notes Cash Box and SD Bracket

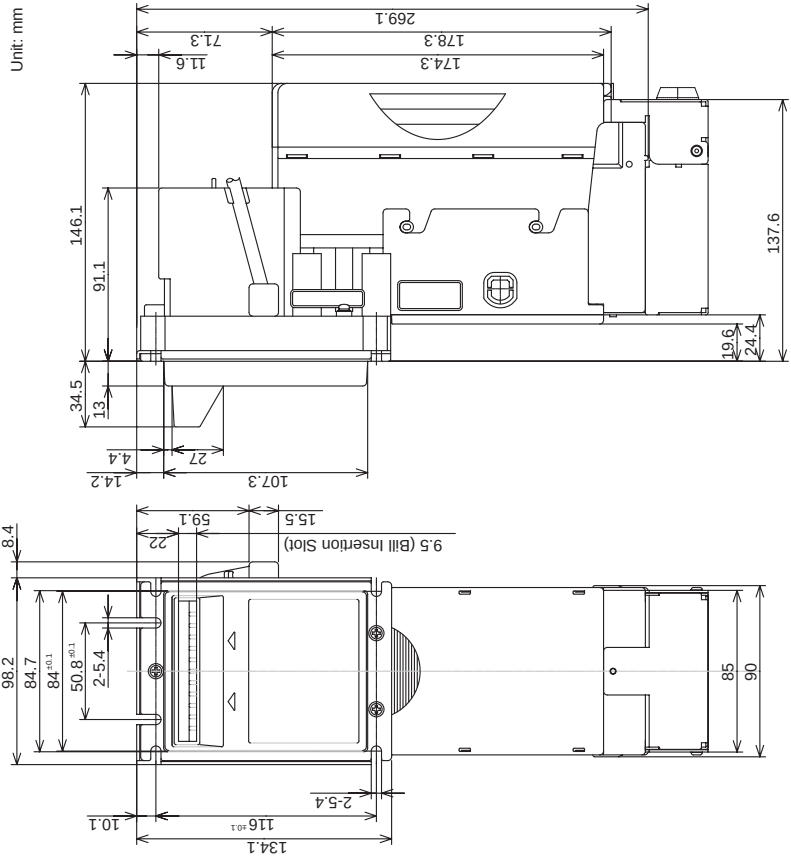


1-9-9. DBV-30X-SD with 200 Notes Cash Box and Lock Module

Unit: mm

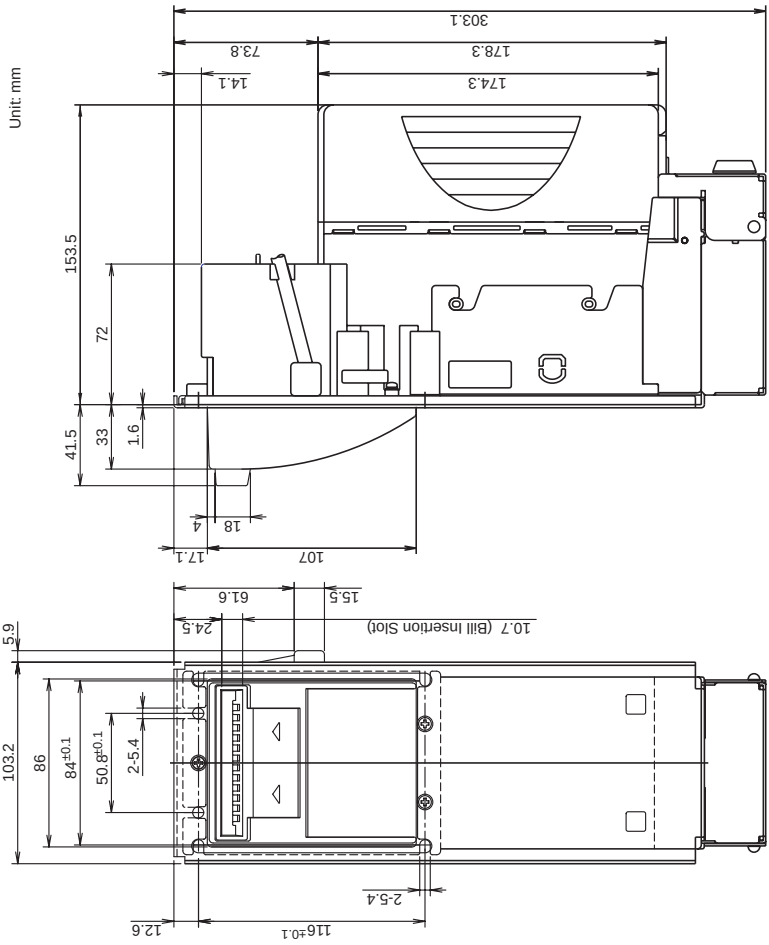


1-9-10. DBV-30X-SD with 300 Notes Cash Box and Lock Module

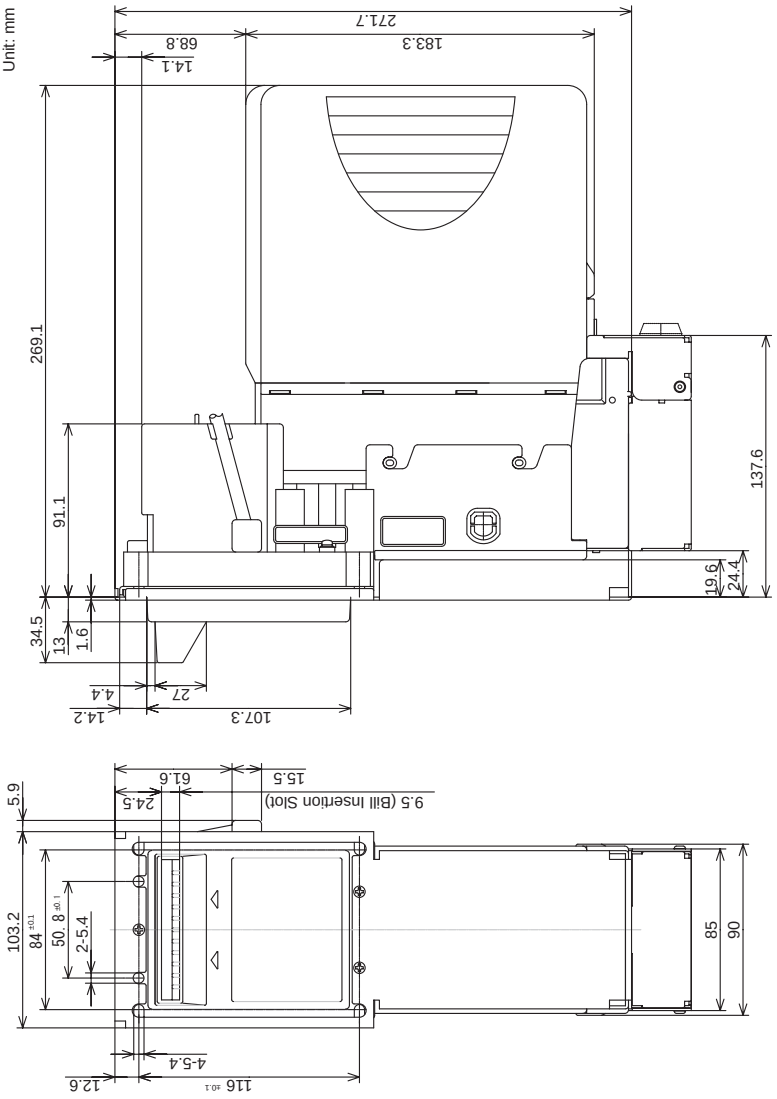


1-9-11. DBV-30X-SD with 500 Note Cash Box, SD Bracket and Lock Module

Unit: mm



1-9-12. DBV-30X-SD with 1,000 Notes Cash Box, SD Bracket and Lock Module



Bill Acceptor
DBV-30X Service Manual

Chapter 2

Installation & Operation

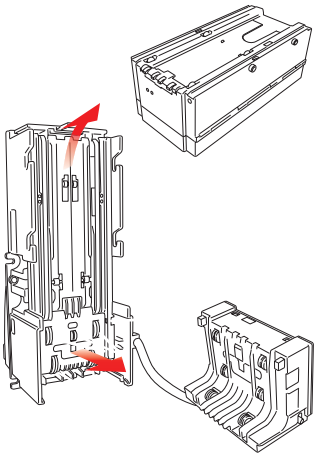
Issue 08/2007

JCM GLOBAL

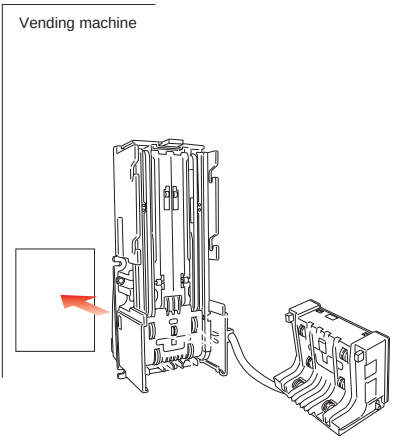
2-1. Installation

2-1-1. Installation

1) Remove the cash box and down guide.

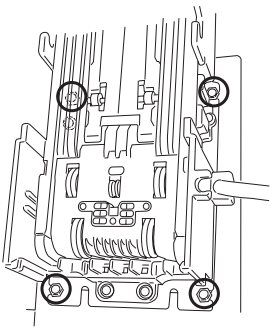


2) Insert the DBV-30X unit into the panel cut out from behind the Vending machine's door.



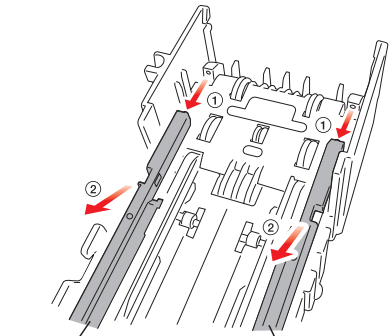
3) Insert the attachment screws into the DBV-30X unit's four insertion slots. Use a screw driver to tighten each attachment screws and secure the DBV-30X unit in place.

4) Install the down guide and cash box.

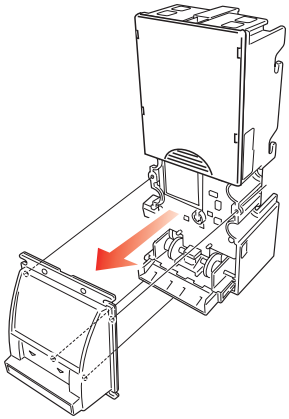


2-1-2. Changing the bill guides

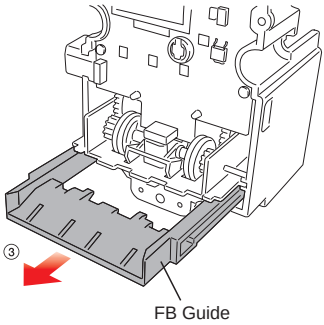
1) Remove the cash box and down guide.



2) Remove the SB guide Left/Right in the arrow (1) and (2) direction.

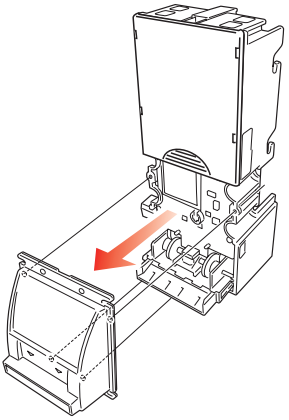


3) Remove the faceplate.
4) Remove the FB guide in the arrow (3) direction.

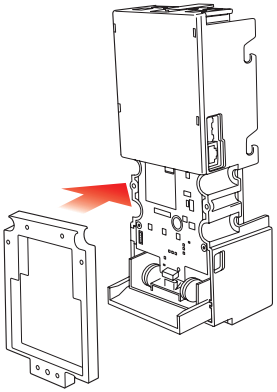


2-1-3. Installing the Snack Mask

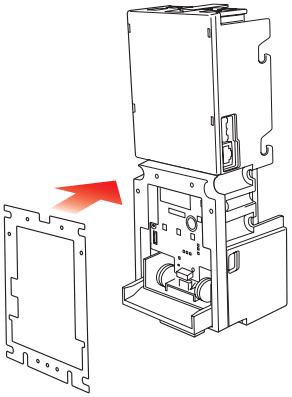
1) Remove the standard faceplate.



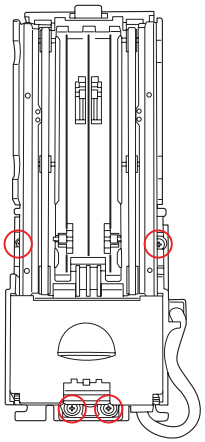
2) Place the Window Spacer on the DBV-30X unit.



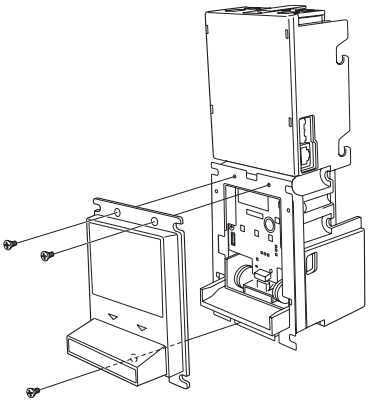
3) Then place the FP Bracket on it.



4) Insert the attachment screws into four (4) insertion slots are located on the rear of the DBV-30X unit. Use a screw driver to tighten each attachment screws and secure them in place.



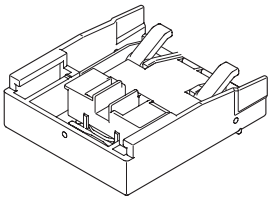
5) Place the Snack Mask and insert the attachment screws into three (3) insertion slots. Use a screw driver to tighten each attachment screws and secure the snack mask in place.



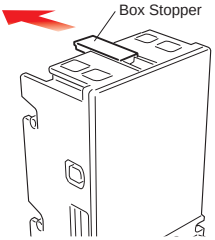
2-1-4. Installing the SD Module and SD Bracket

1) Prepare the SD Module.

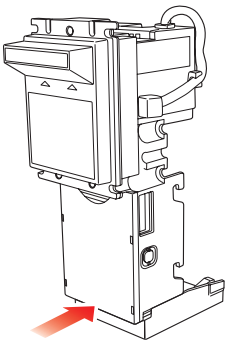
- **Be sure not to loose the spring.**



2) Remove the cash box and take off the box stopper from the DBV-30X unit.

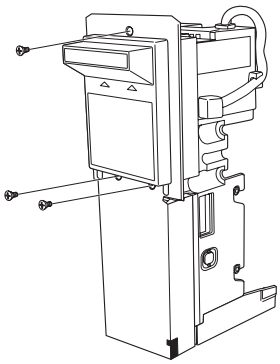


3) Turn the DBV-30X unit upside down and slide the DBV-30X unit backward until it is locked.



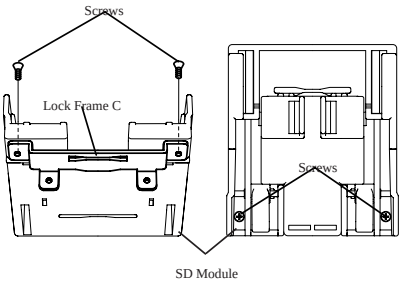
- **The step 4) need to be followed only when attaching the 500 Note Cashbox and 1000 Note Cash Box.**

4) Attach the SD Bracket and insert the attachment screws into three (3) insertion slots. Use a screw driver to tighten each attachment screws and secure them in place.

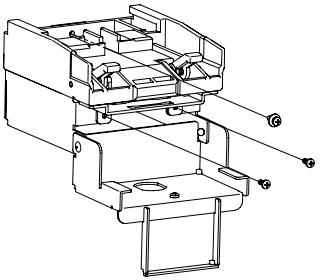


2-1-5. Installing the Lock Module

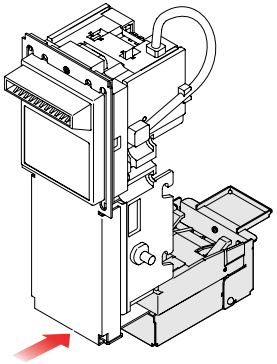
1) Attach the Lock Frame C to the bottom of the SD module and insert the attachment screws into two (2) insertion slots. Use a screw driver to tighten each attachement screws and secure the lock module in place.



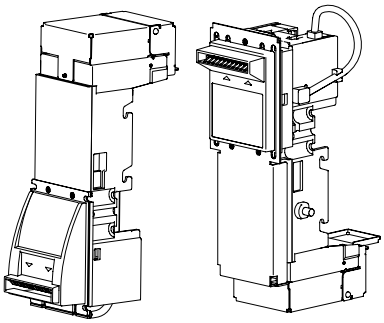
2) Attach the Lock Module to the SD Module and insert the attachment screws into three (3) insertion slots. Use a screw driver to tighten each attachment screws and secure the lock module in place.



3) Turn the DBV-30X unit upside down and slid backward until it is locked to attach the Lock Assy .

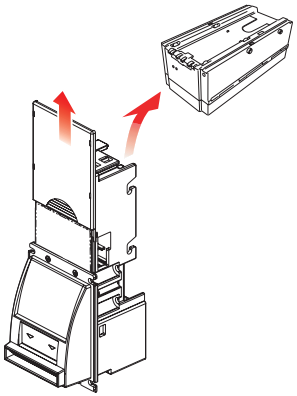


- **Even when installing the lock module to DBV-30X-SU type unit, the SD module is also required. Follow the steps above to install the lock module to the DBV-30X-SU type unit.**

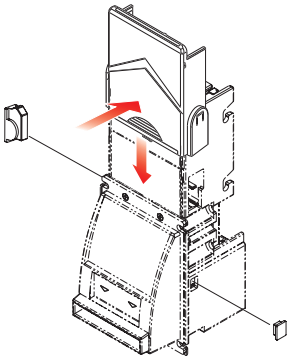


2-1-6. Installing the Waterproof Kit

1) Remove the base cover and the cashbox from the DBV-30X unit.

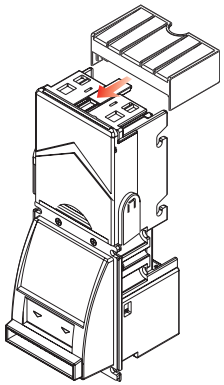


2) Attach the base cover, gasket 1 and gasket 2 to the DBV-30X.

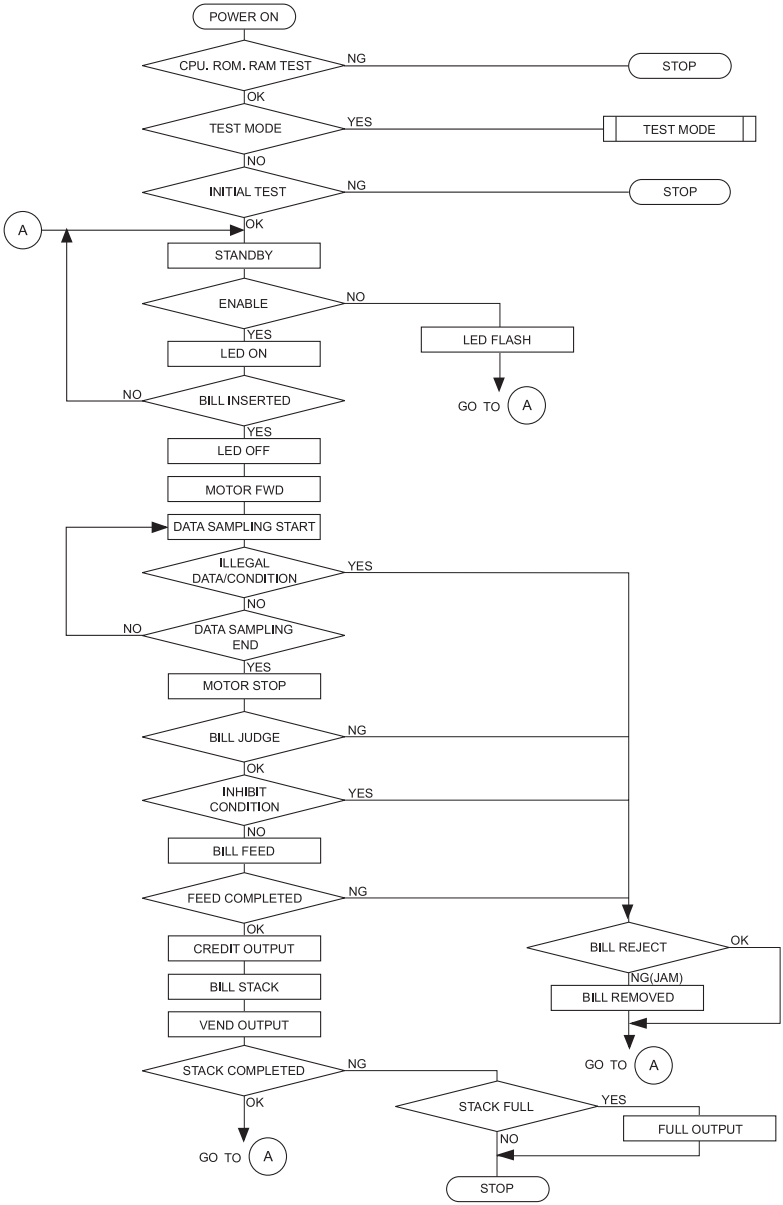


3) Attach the top cover sliding until it clicks.

- **When installing the RC-10 unit, this step does not required.**

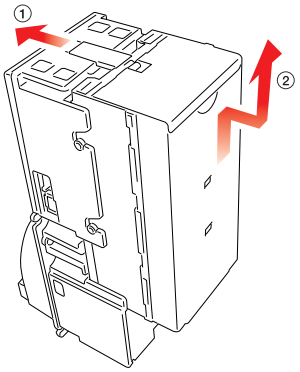


2-2. Operation Flowchart

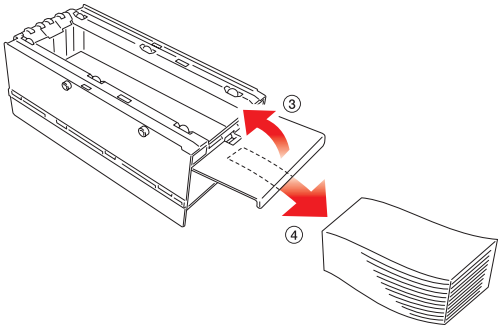


2-3. Collecting Bills

1) Pull the cash box release lever in the arrow (1) direction.
2) Lift the cash box in the arrow (2) direction and remove it.



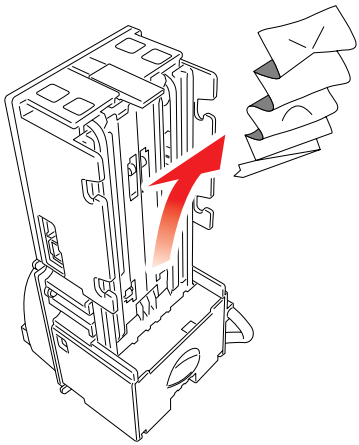
3) Open the cash box cover and remove the bills.



2-4. Clearing Bill Jam

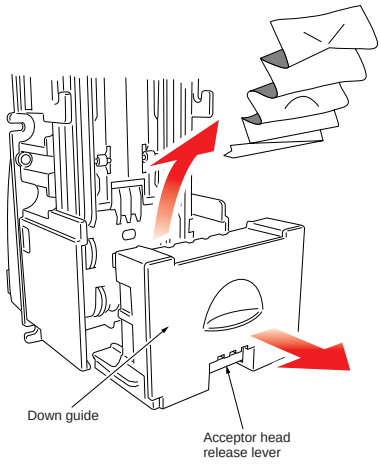
2-4-1. When a bill jammed in Transport path

1) Remove the cash box (Refer to "2-3. Collecting Bills").
2) Remove the jammed bill.



2-4-2. When a bill jammed in Acceptor Head

1) Pull out the down guide, raising the acceptor head release lever.
2) Remove the jammed bill.



2-5. Preventive Maintenance

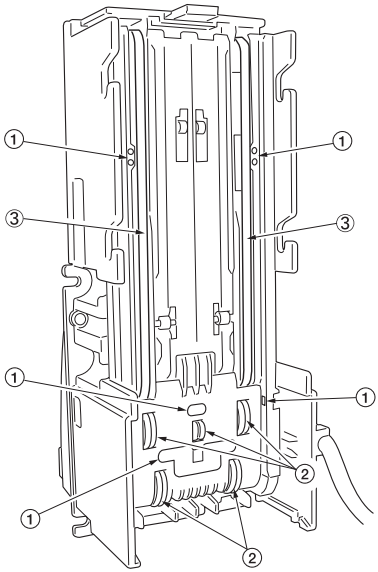
It is important to keep the bill path, rollers, and belts clean. The sensor lenses are transparent, and made of polymer material. Handle them with care. Use a soft lint-free cloth or cotton bud to wipe out dirt and stain on the surface of magnetic and optical sensors, rollers and belts. Repeat the cleaning process as needed until the transport path is free of contaminants.

- **Do not use alcohol or thinner for cleaning.**

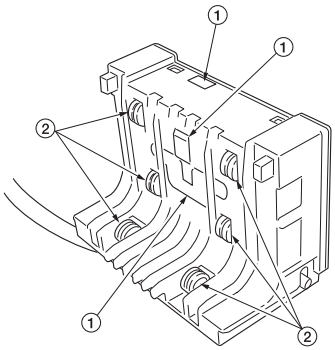
Note - JCM does not recommend cleaning cards, cleaning pads, or cleaning solutions of any kind.

① Sensor
② Roller
③ Belt

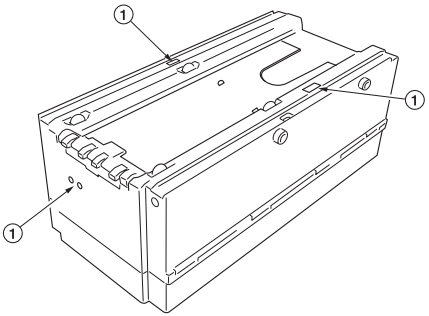
Up Guide and Stacker Section



Down Guide



Cash Box



2-6. Technical Support

-Japan-

Japan Cash Machine Co., Ltd. (Headquarters)
No. 3-15, Nishiwaki 2-Chome, Hirano-ku,
Osaka, 547-0035,
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Phone: +81-66-703-8406
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URL: www.jcm-hq.co.jp

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URL: www.jcmgold.com.hk

NOTE

Bill Acceptor
DBV-30X-SU
DBV-30X-SD

CHAPTER 3

Contents

Disassembly Instruction

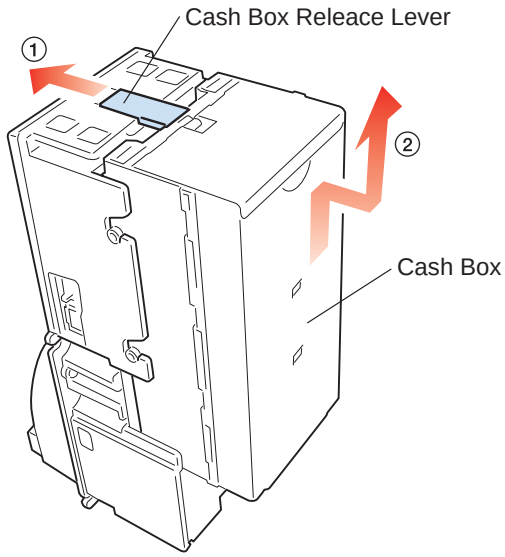
Issue 03/2006

JAPAN CASHMACHINE CO., LTD.

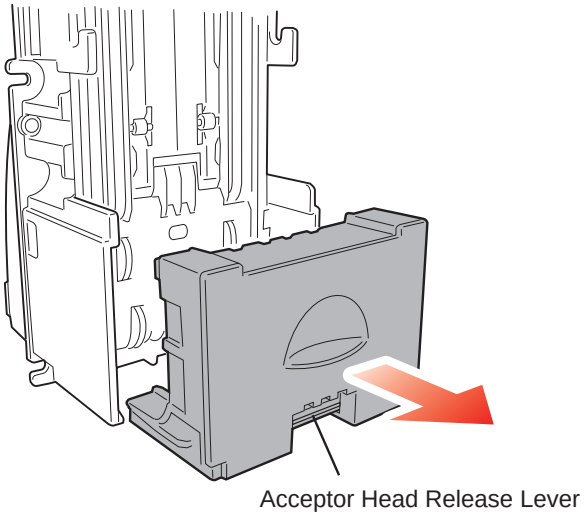
3-1. How to Remove CPU/Power Supply Board

3-1-1. Removing the CPU/Power Sppuly board

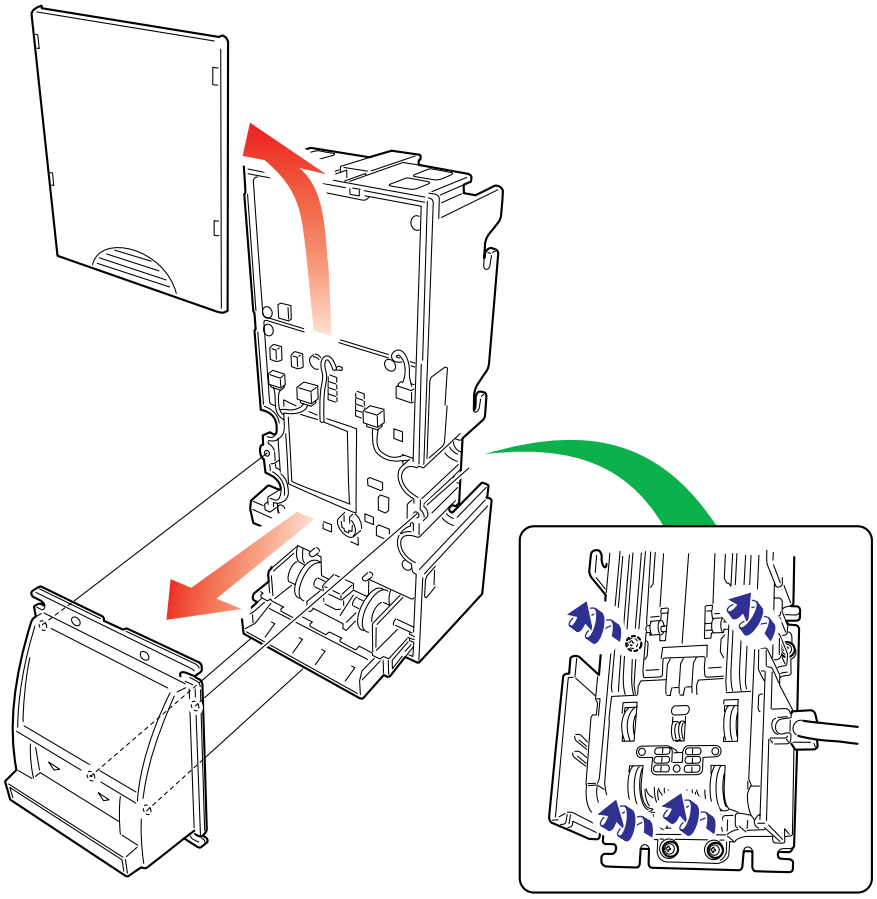
1) Pull the cash box release lever in the arrow (1) direction and remove the cash box in the arrow (2) direction.



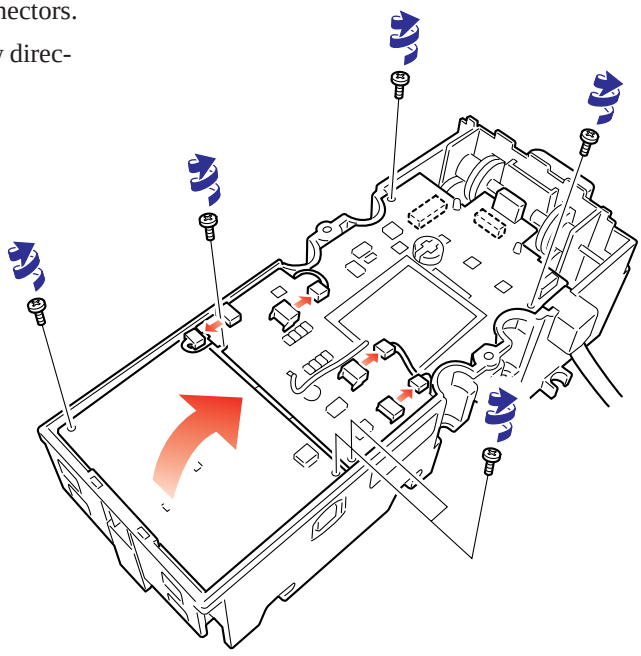
2) Pull out the down guide lifting the acceptor head release lever.



3) Slide upward the base cover to remove the cover.
4) Remove 4 screws to remove the face plate.

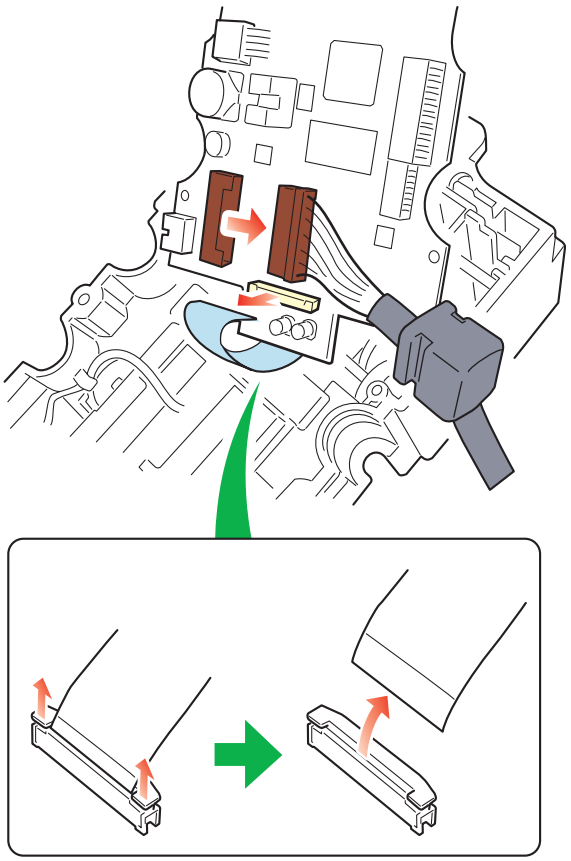


5) Remove 6 screws and disconnect 4 connectors.
6) Remove the board assembly in the arrow direction.

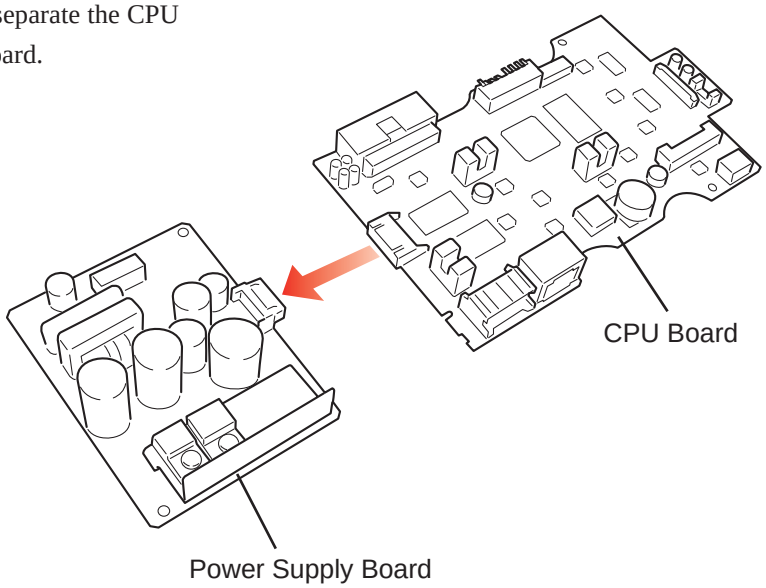


7) Disconnect the connector from the CPU board. Release the lock and remove the flexible connector.

- **When disconnecting the flexible connector, be sure to handle it carefully otherwise the nail of connector breaks.**



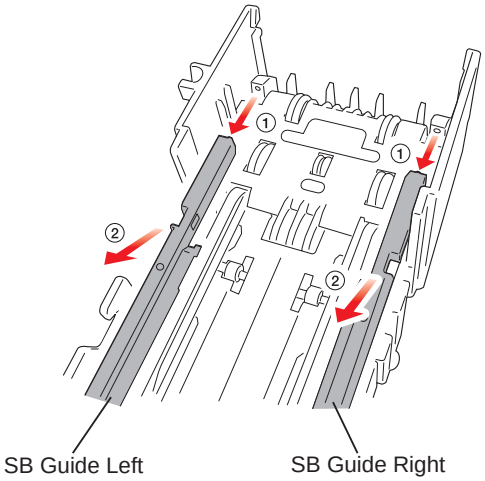
8) Disconnect the connector and separate the CPU board and the Power Supply board.



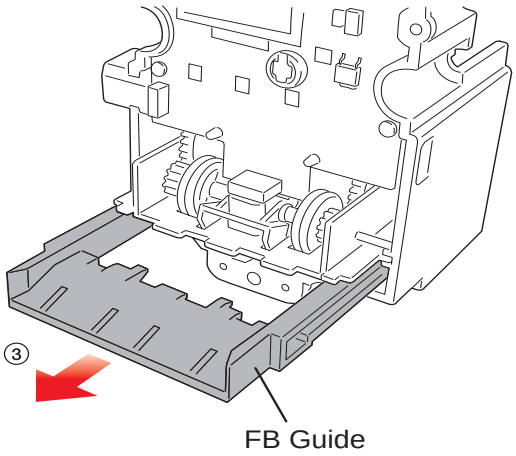
3-2. Disassembly of Pusher Mechanism Assembly

3-2-1. Removing the timing belts

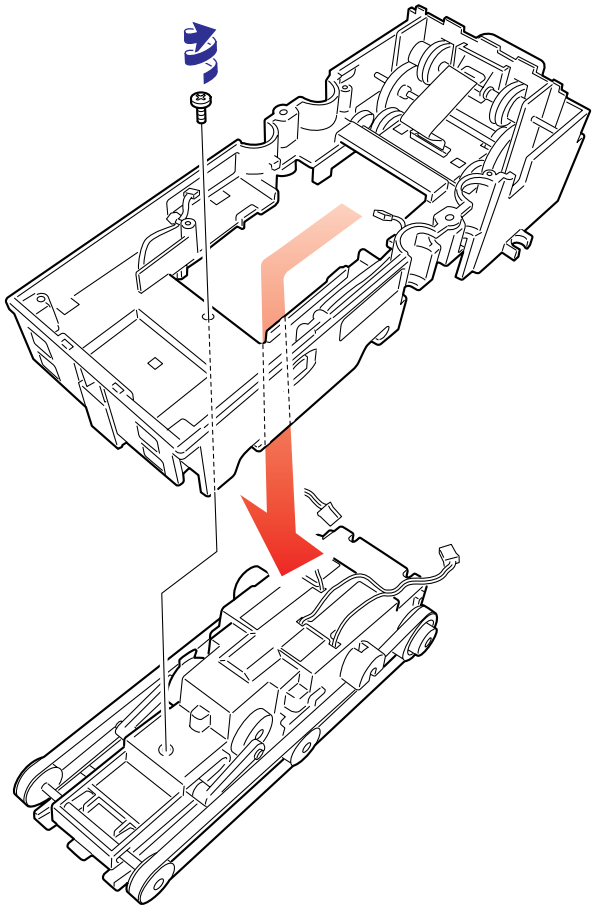
1) Remove the CPU board and power supply board Refer to 3-1. How to Remove Power Supply/CPU Board.
2) Remove the SB guide Left/Right in the arrow (1) direction and the arrow (2) direction.



3) Remove the front FB guide in the arrow (3) direction.

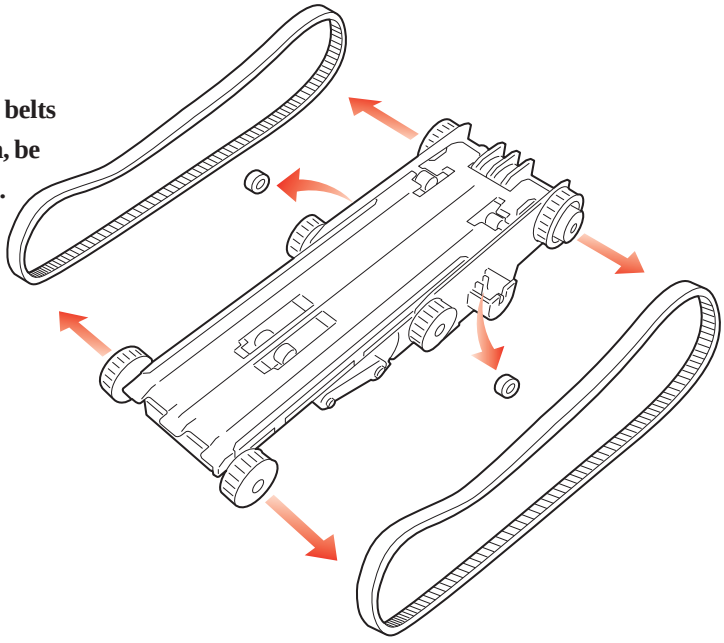


4) Remove the screw and remove the pusher mechanism assembly in the arrow direction.



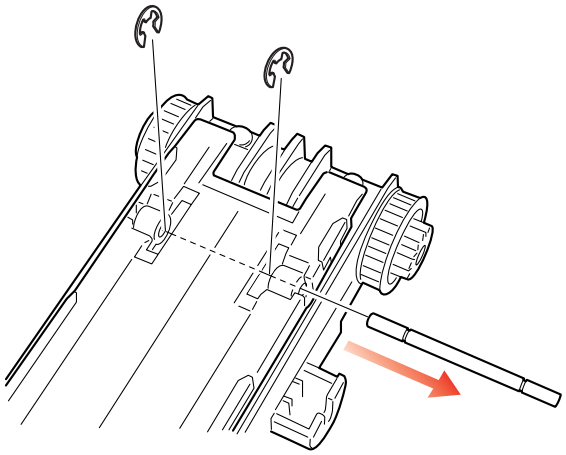
5) Remove 2 timing belts and rollers from the pusher mechanism assembly.

- **When removing the timing belts from the pusher mechanism, be sure not to loose the rollers.**

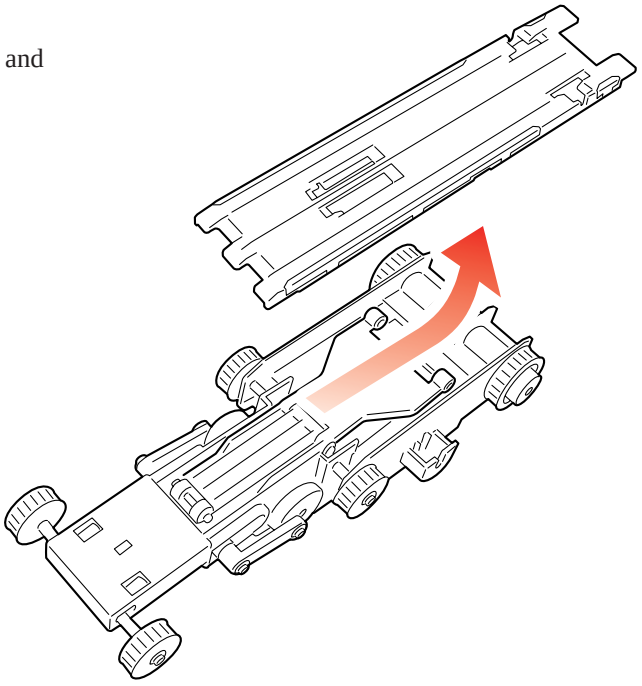


3-2-2. Removing the Feed motor and stacker motor

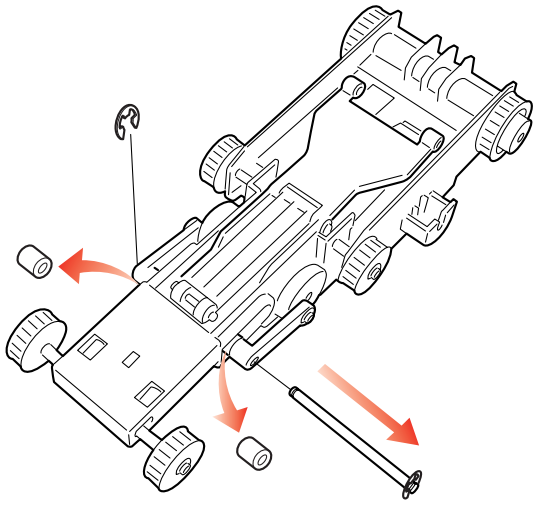
1) Remove 2 E-rings and pull out the shaft from pusher plate.



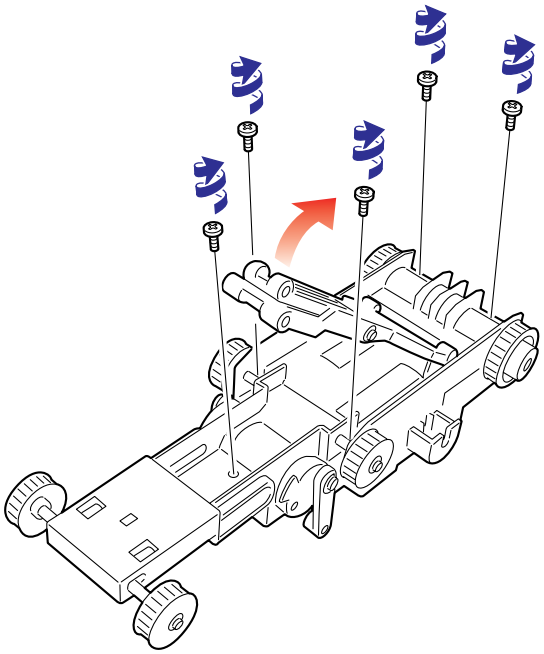
2) Slide the pusher plate in the arrow direction and remove the plate.



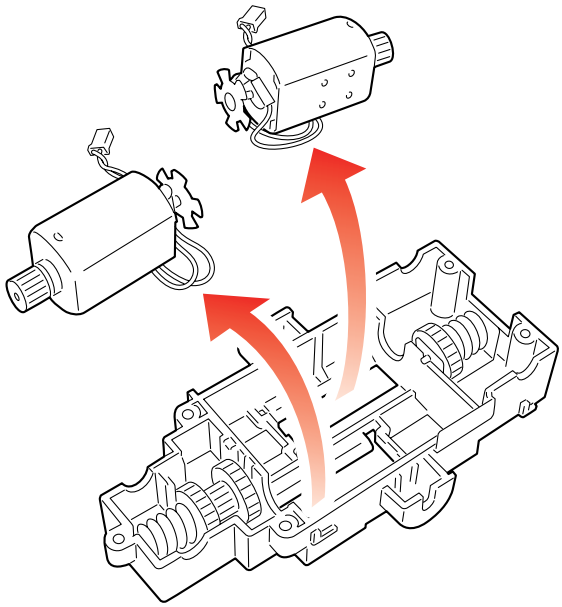
3) Remove the E-ring and pull out the shaft from the pusher arm. Remove 2 spacers.



4) Lift the pusher arm and remove 5 screws and remove the motor guide.



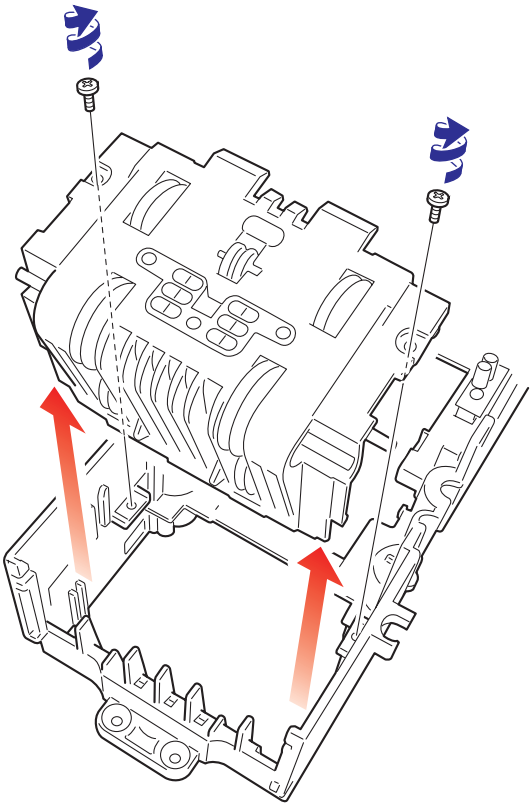
5) Remove the feed motor and stacker motor from the motor guide.



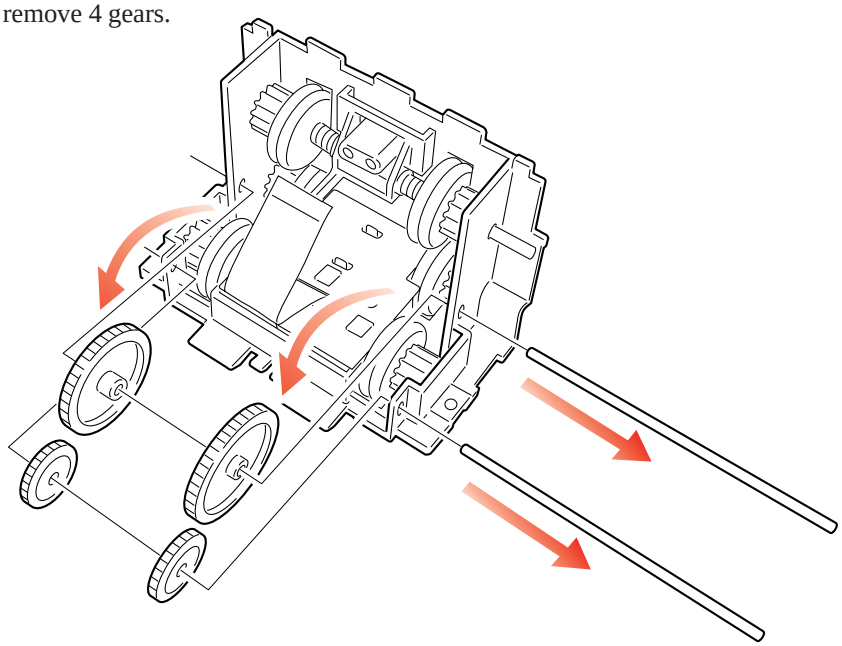
3-3. Disassembly of Up Guide

3-3-1. Removing the Sensor board

1) Remove the pusher mechanism assembly Refer to 3-2. Disassembly of Pusher Mechanism Assembly.

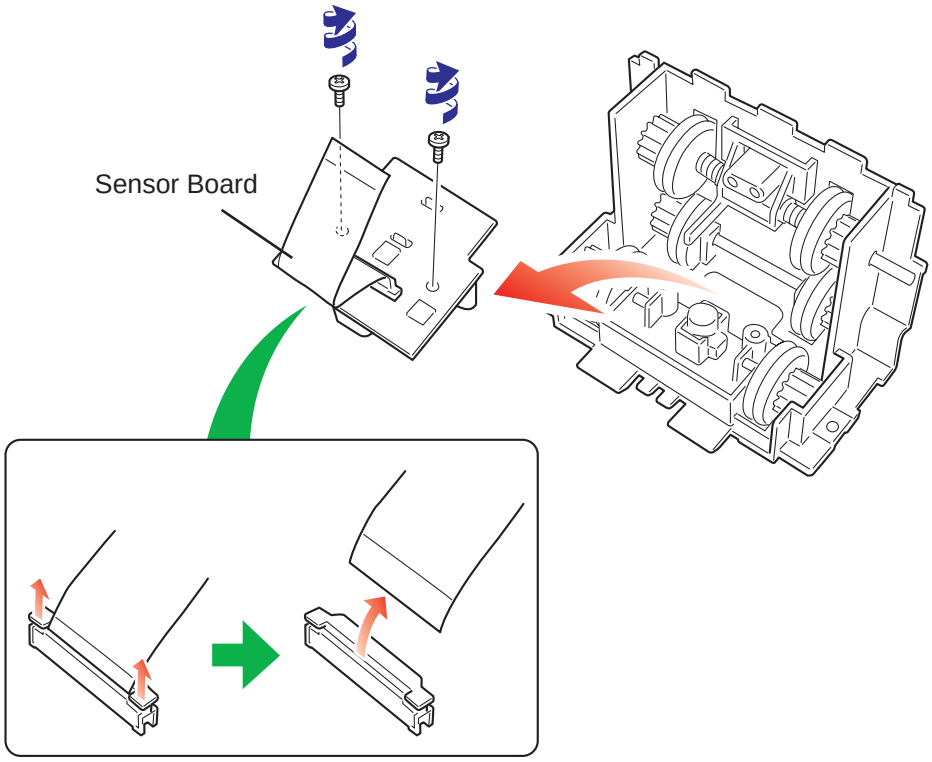


2) Remove 2 screws and pull out the up guide.
3) Pull out 2 shafts and remove 4 gears.



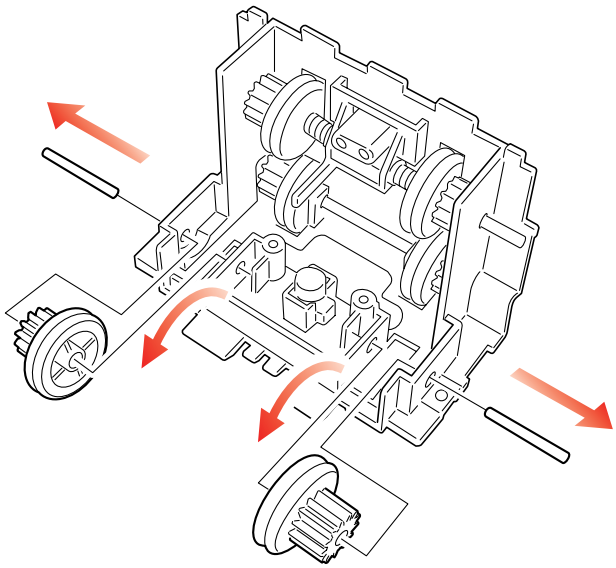
4) Remove 2 screws and remove the Sensor board.
5) Release the lock and remove the flexible connector from the sensor board.

- **When disconnecting the flexible connector, be sure to handle it carefully otherwise the nail of connector breaks.**

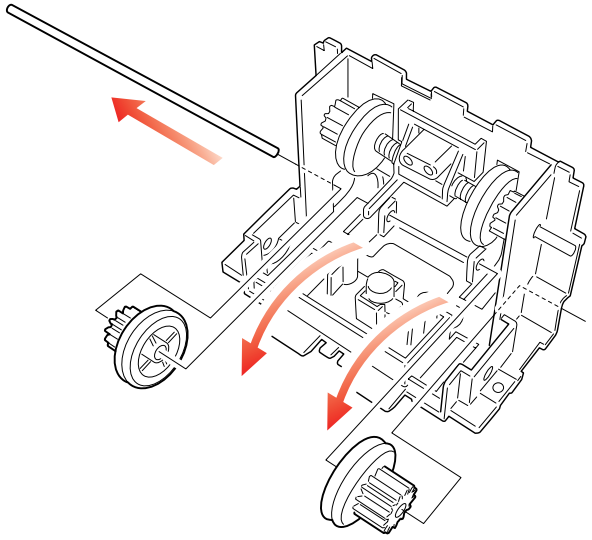


3-3-2. Removing the O-rings

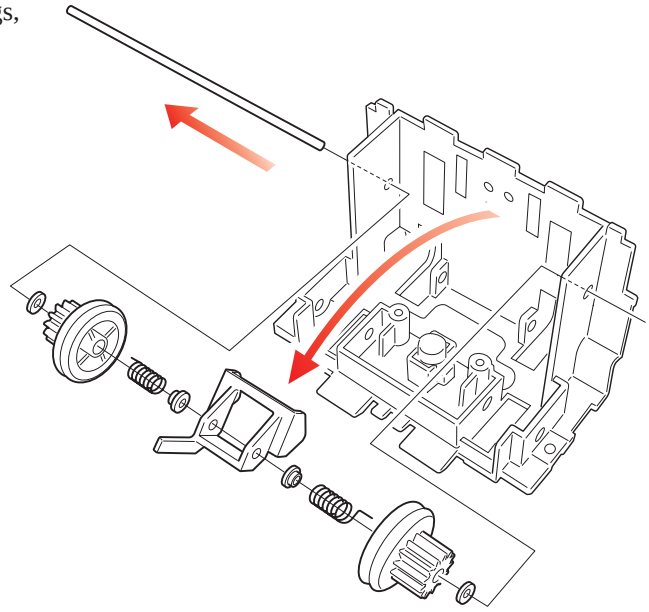
1) Pull out 2 shafts and remove 2 gears.



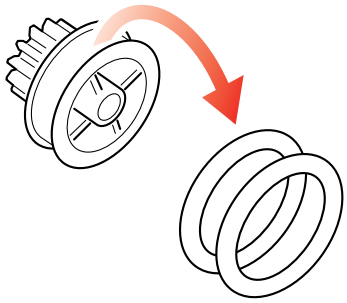
2) Pull out the shaft and remove 2 gears.



3) Pull out the shaft and remove 2 gears, 2 springs, 2 bushings, 2 polly sliders and actuator.

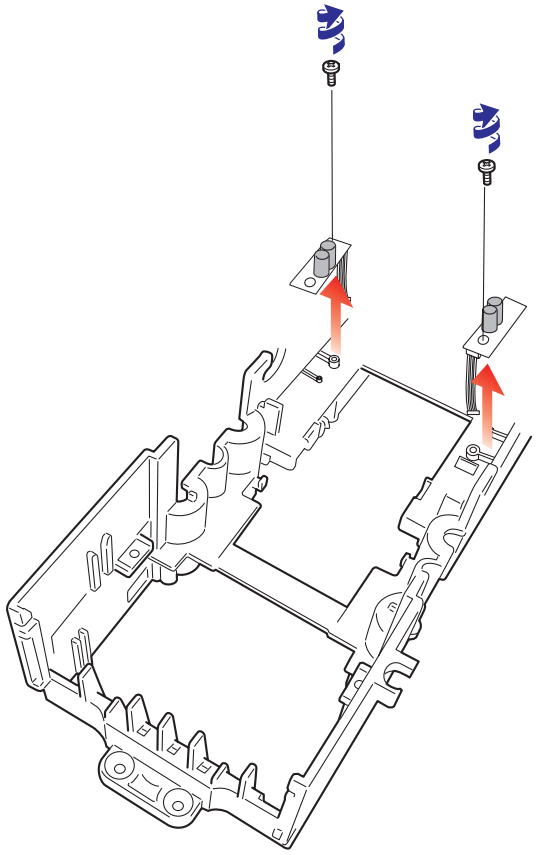


4) Remove 2 O-rings from each gears.



3-3-3. Removing the Feed Small Boards

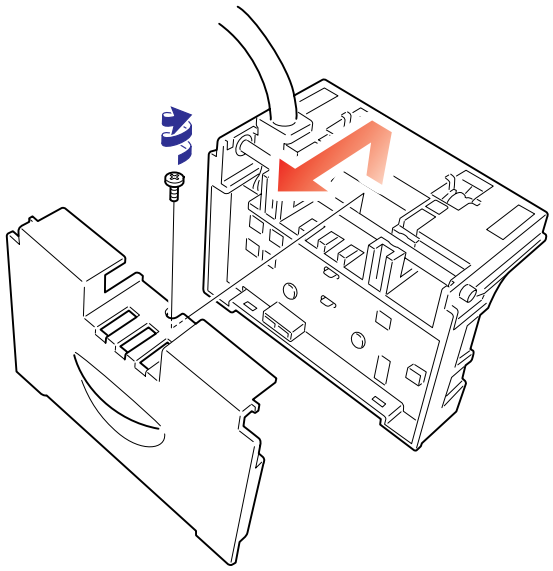
1) Remove the screws and both Left and Right Feed Small Board in the allow direction



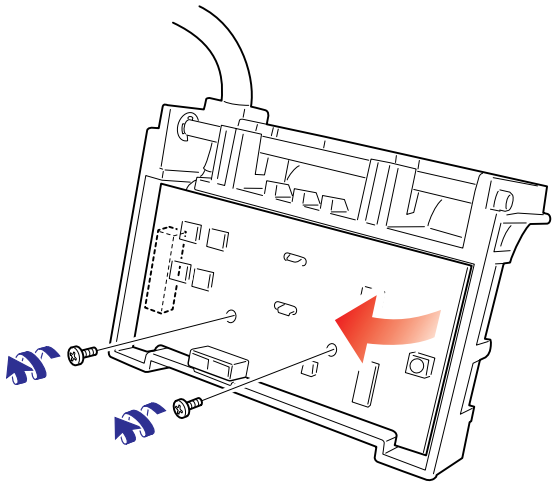
3-4. Disassembly of Down Guide

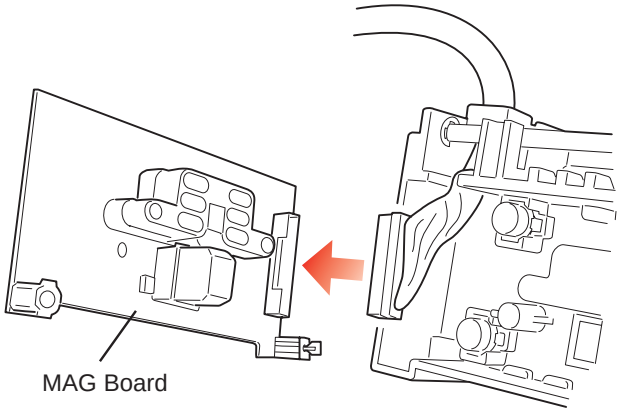
3-4-1. Removing the MAG board

1) Remove the screw to remove the down guide cover in the arrow direction.



2) Remove 2 screws from the MAG board.
3) Disconnect the connector and remove the MAG board.





Bill Acceptor
DBV-30X-SU
DBV-30X-SD

CHAPTER 4

Contents

Trouble Shooting and Diagnostics

Issue 03/2006

JAPAN CASH MACHINE CO., LTD.

4-1. Error Code & Reject Code

This section explains the error code and the reject code. The following tables lists the Condition LED's color, the number of blinking and their meanings. When an error and rejection occurs, check the Condition LED's color and the number of blinking and detect the cause.

4-1-1. Error Codes

Condition LED			Discription	Solution
R	Y	G		
	1		Stacker Full	Cash box is full. Collect the bill. Refer to 2-3. Collect the bill.
2			Stacker JAM	Remove the Jam bill. Refer to 2-4. Clearing Bill Jam.
3			Acceptor JAM (When recycler working)	
	4		Acceptor JAM	
5			Feed Motor Speed Error	Perform the Diagnostic. Refer to 4-3. Diagnostic.
6			Feed Motor Lock	
	7		Instruction waiting from host when the bill is escrow	
8			Reserved	
	9		Continuous Insertion Protect Lever JAM	Remove the Jam bill. Refer to 2-4. Clearing Bill Jam.
	10		Box is not set.	Set the cash box properly. When the error is not reset, perform the Diagnostic. Refer to 4-3. Diagnostic.
	11		Box Sensor Error	
	12		Cheating	Cheating was occurred. When reset the error, remove/install the cash box.
	13		Down Guide is not set.	Set the Down Guide properly.
14			Reserved	
15			EEPROM Read Error	EEPROM Read Error is occurred. When reset the error, remove/install the cash box. When the error is not reset, adjust the DBV-30X unit. Refer to 5-2. Adjustment.

4-1-2. Reject Codes

Condition LED			Description
R	Y	G	
		1	Insertion Error
		2	Magnetic Error
		3	Paper detected inside acceptor at standby
		4	Adjustment/Magnification Error
		5	Reject by Feed Error
		6	Denomination Select Error
		7	Photo Pattern Error (1)
		8	Photo Level Error
		9	Inhibited Bill
		10	Return direction from host machine
		11	Foreign substances detection of the exit sensor
		12	Escrow Position Error
		13	Bill Length Error
		14	Photo Pattern Error (2)
		15	Incompatible Bill Error

4-2. Trouble Shooting

4-2-1. General Problems

Symptoms/Error Messages	Possible Causes	Corrective Action
Bill Acceptor is not working (does not take any bills).	No external power is applied to the bill acceptor	Verify that the appropriate input voltage and ground are connected to appropriate pins on the main connector.
	Wrong or inappropriate connections	Check the connections of all harnesses and connectors. Check for any bent, missing or damaged pins in the connectors. Check the specified voltage is used in appropriate pin.
	Software is not downloaded.	Download the correct software. Refer to chapter 5 for download instructions.
	Sensor/MAG/CPU/Power Supply board failure.	Refer to 5-2. Diagnostics and conduct Running Test. If the test result is NG, replace Sensor/MAG/CPU/Power Supply board. Make sure to adjust the sensors after Sensor /MAG/CPU/Power Supply board is replaced.
	Entrance Sensor is not working or foreign object in the entrance.	Remove the foreign object and clean the sensor. Perform the acceptor sensor test. Refer to 4-3-6. Acceptor Sensor Test. If the test result is NG, replace CPU board. Refer to 3-1. How to Remove the Circuit Board.
Bill is jamming often.	Drive belts are dirty or damaged.	Clean the drive belts and the pressure rollers. Replace as necessary. Refer to 2-5. Preventive Maintenance.
	Pressure roller spring is loose or missing.	Check the pressure roller springs with finger and replace as necessary.
	Foreign object in the transport path and inside the Cash Box.	Clean the transport path and the cash box to remove the foreign object. Refer to 2-5. Preventive Maintenance.
	Bill guide is not inappropriate.	Seat the transport unit all the way back so that the latches of transport unit release levers are locked in the frame.
	Bill is wider than 72 mm or narrower than 65mm (out of DBV-30X specifications).	Use only bills within DBV-30X specifications.
Low acceptance rates.	Dirt and stain on the rollers, belts and lenses.	Clean the transport path. Refer to 2-5. Preventive Maintenance.
	Sensors need to be clean and adjust.	Clean the transport path. Refer to 2-5. Preventive Maintenance. Follow the instructions on 5-1. Adjustment to adjust the sensors.
	The unit has been disassembled and the Adjustment is not done after it is reassembled.	Make sure to adjust the sensors after re-assemble the DBV-30X.
	Using wrong software or old version software.	Make sure if the programmed software is the latest version and it supports the bills you wish to be accepted.
	Bills are not to be accepted in this software.	Check the specifications, and make sure the bills are to be accepted in the software (check denomination/issuing year).

Symptoms/Error Messages	Possible Causes	Corrective Action
All bills are rejected.	Wrong software (different currency).	Download correct software. Refer to 5-1. Software Download.
	Wrong DIP switch settings.	Enable the denominations by setting DIP switches OFF
	Bill acceptance is inhibited by the command from host controller.	Enable the bill acceptance by the command.
	Sensor/MAG/CPU board failure.	Change the Sensor/MAG/CPU board. Refer to 3-5. How to remove Circuit Boards.
	Sensors need to be clean and adjusted.	Refer to 2-5. Preventive Maintenace to clean the sensors. Follow the instructions on 5-2. Adjustment to adjust the DBV-30X.
The motor rotates several time and stops.	CPU board failure.	Refer to the 3-1. How to Remove the Circuit Board.
	Wrong DIP switch settings.	Set the switch SW1-8 ON, and then supply power to the DBV-30X unit.
Can not enter the TEST mode.	Dip switch failure.	Refer to the 4-2. Diagnostics and conduct DIP Switch TEST to check if the DIP switch has a failure.
	CPU Board failure.	Change the CPU board. Refer to 3-5. How to Remove Circuit Boards.

4-2-2. Adjustment Problems

Symptoms/Error Messages	Possible Causes	Corrective Action
Can not start the Cab300.exe program by double-clicking.	OS is not applicable.	Our Adjustment program supports only Windows 98 Second Edition/2000.
	The program files are corrupted.	Ask JCM for the correct programs.
Communication Error.	Wrong or inappropriate connections	Check the connections of PC and DBV-30X connectors. Check for any bent, missing or damaged pins in the connectors.
	DIP switch setting of DBV-301 is not correct.	Set the DBV-30X unit's DIP switches SW1-1 to SW1-7 OFF and SW1-8 ON, and turn on the power of VM30X.
	DIP switch failure.	Refer to the 4-2. Diagnostics and conduct DIP Switch Test.
	CPU board failure.	Change the CPU board. Refer to 3-1. How to Remove Circuit Boards.
	Power is not supplied.	Change the Power Supply board. Refer to 3-1. How to Remove Circuit Boards.
	Harness failure	IFU-002 is broken. Please exchange it.
Adjustment Error.	Wrong reference paper.	Follow the instruction on the Adj300.exe program and use the correct reference paper.
	Sensor/MAG/CPU boards failure.	Change the Sensor/MAG/CPU board. Refer to 3-5. How to Remove Circuit Boards.

4-2-3. Communication Problems

Symptoms/Error Messages	Possible Causes	Corrective Action
Can not communicate with host.	DIP switch settings are wrong.	Set all DIP switches OFF.
	Connectors are disconnected or loosely connected.	Firmly connect all the connectors.
	Damaged connector pins.	Check for any bent, missing or damaged pins in the connectors.
	CPU/Power Supply board is corrupted.	Replace CPU/Power Supply board. Refer to Chapter 3 Disassembly Instructions.
	Wrong interface.	Check if the interface is the same for the host machine and the bill acceptor.

4-3. Diagnostics

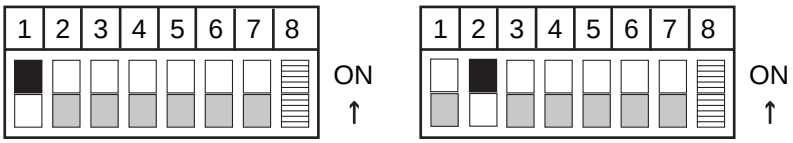
DBV-30X is equipped with diagnostic feature to aid in repair and maintenance. This section describes the test procedure of each function using DIP switch to identify the cause of failure condition. To identify the cause of failure condition, DBV-30X need to be entered in the Test mode.

4-3-1. How to enter the Test Mode

1) Set SW1-8 ON and SW1-1 to SW1-7 OFF then supply the DBV-301 power ON.
2) The Indication LED located on the faceplate is blinking and the Condition LED (green, yellow and red) located on the rear of the unit lights. This indicates the unit is in the Test mode.
3) Set the DIP switches SW1-1 to SW1-7 depending on the test you wish to execute. (See 4-2-2 to 4-2-10)
4) Set the SW1-8 OFF to start the test. When the test starts, Indication LEDs turns OFF and all green, yellow and red Condition LEDs turns OFF. After few seconds, the Condition LEDs turn ON/OFF depending on the condition of the part that the test is executed.
5) To finish the test, set the SW1-8 ON. When finishes the test, the indication LED blinks and all green, yellow and red Condition LEDs turn OFF.

4-3-2. Feed Motor Forward/Reverse Rotation Test

This detects the motor speed of forward/reverse rotation. Confirm the motor operates smoothly without abnormal noise.



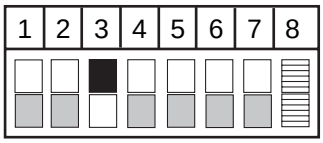
Forward Rotation Reverse Rotation

◆Feed Motor Forward/Reverse Rotation Error Code

Condition LED			Motor Condition	Causes and Solution
R	Y	G		
1	1	1	Normal	-
2	2	2	Fast	Contact JCM.
3	3	3	Slow	Power Supply Board failure may occurs. Refer to 3-1. How to Remove Circuit Board to change the Power Supply Board.
6	6	6	Abnormal	Motor encoder sensor does not detect. Check all harnesses and connectors. The CPU board failure may occur. Change the CPU board. Refer to Chapter 3. Disassembly Instructions.

4-3-3. Stacker Test

This detects the stacker condition. When the test starts, the pushing mechanism is working constantly. When no LED lights, it means the stacker is working properly. When the red and yellow LEDs light, refer to Stacker Test Error Code shown below and detects the error.

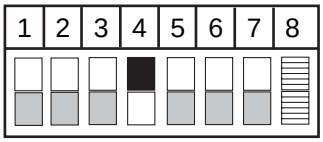


◆Stacker Error Code

Conditon LED			Stakcer Condition	Causes and Solution
R	Y	G		
			Normal	-
	1		Stacker Full	Check the cash box. Check all harnesses and connectors. Change the MAG/CPU board if required. Refer to Chapter 3. Disassembly Instructions.
2			Stacker JAM/Lock	Check all harnesses and connector. CPU/Feed small board failure may occur. Change the CPU/Feed small board if required. Stacker Motor may be corrupted. Change the motor if required. Refer to Chapter 3. Disassembly Instructions.
	10		Box is not set	Set the cash box properly.Check all harness and connectors. MAG/CPU board failure may occur. Change the MAG/CPU board if required.

4-3-4. Running Test

This detects the DBV-30X's operating condition. When the test starts, the operation from the bill insarted to stacked are repeated. If no LED lights, it means the DBV-30X unit operates properly. If the red or yellow LED lights, refer to Running Test Error Code shown below and detects the error.

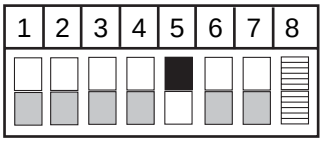


◆Running Error Code

Conditon LED			Stacker Condition	Causes and Solution
R	Y	G		
			Normal	-
	1		Stacker Full	Check all harnesses, connectors and cash box. Change the MAG/CPU board if required. Refer to Chapter 3. Disassembly Instruction.
2			Stacker JAM/Lock	CPU/Feed small board failure may occur. Check all harnesses and connector and change the CPU/Feed small board if required. Stacker motor may be corrupted. Change the motor if required. Refer to Chapter 3. Disassembly Instruction.
	4		Acceptor JAM	Contact JCM.
5			Motor Speed	Power Supply Board failure may occurs. Refer to 3-1. How to Remove Circuit Board to change the Power Supply Board.
6			Motor Lock	Motor encoder sensor does not detect. Check all harnesses and connectors. The CPU board failure may occur. Change the CPU board. Refer to Chapter 3. Disassembly Instructions.
	10		Box is not set.	Set the cash box properly. MAG/CPU board failure may occur. Check all harness and connectors. Change the MAG/CPU board if required. Refer to Chapter 3. Disassembly Instruction.
	11		Box Sensor Error	Check whether the foreign object is between transport path and cash box. MAG/CPU board failure may occur. Check all harness and connectors. Change the MAG/CPU board if required. Refer to chapter 3. Disassembly Instruction.
	13		Down Guide is not set.	Set the down guide properly. MAG/CPU board failure may occure. Check all harness and connectors. Change the MAG/CPU board if required. Refer to chapter 3. Disassembly Instruction.

4-3-5. Continuous Insertion Protect Lever Test

This detects the DBV-30X unit's Continuous Insertion Protect Lever condition. When the test starts, the lever is working constantly. When the red, yellow and green LEDs of the Condition LED blink, refer to the following the Error Code and detects the error.



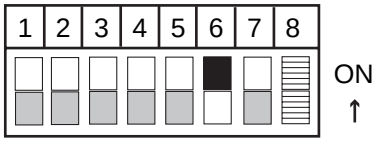
◆Continuous Insertion Protect Lever Error Code

Conditon LED			Continuous Insertion Protect Lever Condition	Causes and Solution
R	Y	G		
			Normal	-
6	6	6	Motor Lock	Transport Motor encoder sensor does not ditect.Check all harnesses and connectors. The Transport Motor/CPU board failure may occur. Change the Transport Motor/CPU board. Refer to Chapter 3. Disassembly Instructions.
9	9	9	Sensor Abnormal	Check the lever and harness. Check the spring is installed properly.

4-3-6. Acceptor Sensor Test

This detects Acceptor sensors condition. To check the Acceptor sensors condition, set the DIP Switch ON depending on the sensor as shown below. For details about sensor location, refer to 4-4. Sensor, board and motor location.

- **The acceptor sensor test can test more than one specifying sensor at the same time.**

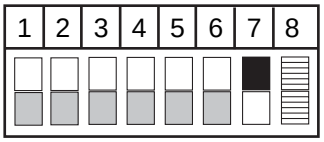


SW No.	Sensor Name
SW1-1	Continuous Insertion Protect Lever sensor (PI1)
SW1-2	Enterance sensor
SW1-3	Acceptor sensor's PSML (l1t_rd:Red Left 1)
SW1-4	Acceptor sensor's PSMR (r1t_rd:Red Right 1)
SW1-5	Acceptor sensor's PSL (l3t_ir:Red Left 3)
SW1-6	Acceptro sensor's PSR (r3t_ir:Ret Right 3)
SW1-7	Exit sensor

4-3-7. Stacker Sensor Test

This detects stacker sensor condition. To check the stacker sensor condition, set the DIP switch depending on the sensor as shown below. For details about sensor location, refer to 4-4. Sensor, board and motor location.

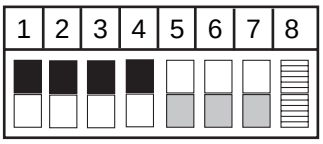
- **The stacker sensor test can test only one specifying sensor.**



SW No.	Sensor Name
SW1-1	Transport senosr Left
SW1-2	Reserved
SW1-3	Transport sensor Right
SW1-4	Stacker Home sensor
SW1-5	BOX sensor
SW1-6	Stacker Motor Encoder sensor
SW1-7	Feed Motor Encoder sensor

4-3-8. Bill Acceptance Test

This detects the acceptance of bills. After setting the DIP switch SW1- 8 OFF to start the test, insert a bill to detects the acceptance of bill. If the green LED blinks, refer to Bill Acceptance Error Code shown below and detects the error.

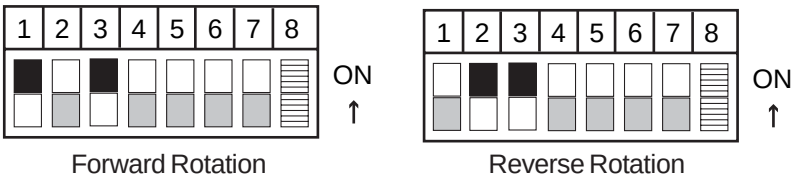


◆Bill Acceptance Error Code

Condition LED			Possible Causes	Causes and Solutions
R	Y	G		
		1	Insertion Error	Insert the bill straight.
		2	Magnetic Error	Check MAG sensor if there are any dirt. Clean the sensor and rollers. To clean the sensors and rollers refer to 2-5.Preventive Maintenance. MAG board failure may occur. Check all harnesses and connectors. To change the MAG board, refer to 3-5. How To Remove Circuit Boards.
		3	Paper detected inside acceptor at standby	Remove the paper from the acceptor and clean the lenses. Refer to 2-5. Preventive Maintenance. Sennsor/MAG boards failure may occur. Check all harnesses and connectors. To change the Sensor/MAG board, refer to 3-5. How To Remove Circuit Boards.
		4	Adjustment/Magnification Error	
		5	Transportation Error	Insert the bill properly. Set the down guide properly. Check all lenses if there are any dirt of scratches. To clean the sensors refer to 2-5.Preventive Maintenance. Sensor/CPU board failure may occur. Check all harnesses and connectors. To change the Sensor/CPU board, refer to 3-5. How To Remove Circuit Boards.
		6	Denomination Distinction Error	Remove the bill from the acceptor clean the lenses. Refer to 2-5. Preventive Maintenance. Sensor/MAG boards failure may occur. Check all harnesses and connectors. To change the Sensor/MAG board, refer to Chapter 3. Disassembly Instructions.
		7	Photo Pattern Error (1)	
		8	Photo Level Error	
		9	Inhibited bill	Set the DIP switch properly. Refer to 1-4. Component Names and Software Specifications.
		10	Return instruction from the host machine	Does not the return instruction come from the outside?
		11	Exit Sensor Error	Are there any foreign object around the exit sensor? Clean the exit sensor. Refer to 2-5. Preventive Maintenance. MAG/CPU board failure may occur. Change the MAG/CPU board if required. Refer to Chapter 3. Disassembly Instructions.
		12	Escrow Position Error	Are there any darts on the belts and rollers. Clean the belts and rollers. Refer to 2-5. Preventive Maintenance. Check the Input power voltage is specified voltage. Change the CPU/ Power Supply board if required. Refer to Chapter 3. Disassembly Instructions.
		13	Bill length Error	Check all belts and rollers on the transport path. To clean the belts and rollers, refer to 2-5. Preventive maintenance. To change the belts and rollers, refer to chapter 3. Disassembly Instructions.
		14	Photo Pattern Error (2)	Remove the bill from the acceptor and clean the lenses. Refer to 2-5. Preventive Maintenance. Sensor/MAG boards failure may occur. Check all harnesses and connectors. To change the Sensor/MAG board, refer to 3-5. How To Remove Circuit Boards.
		15	Incompatible Bill Error	

4-3-9. Stacker Motor Forward/Reverse Rotation Test

This detects the Stacker Motor's forward/reverse rotation condition. If the red, yellow and green LED lights, refer to Stacker Motor Forward/Reverse Rotation Error Code shown below and detects the error.



Forward Rotation Reverse Rotation

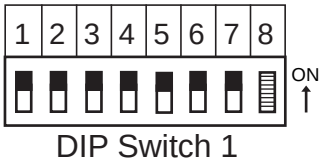
◆Stacker Motor Forward/Reverse Rotation Error Code

Condition LED			Motor Condition	Causes and Solution
R	Y	G		
1	1	1	Normal	-
2	2	2	Fast	Contact JCM.
3	3	3	Slow	Power Supply Board failure may occurs. Refer to 3-1. How to Remove Circuit Board to change the Power Supply Board.
6	6	6	Abnormal	Motor encoder sensor does not detect. Check all harnesses and connectors. The CPU board failure may occur. Change the CPU board. Refer to Chapter 3. Disassembly Instructions.

4-3-10. DIP Switch Test

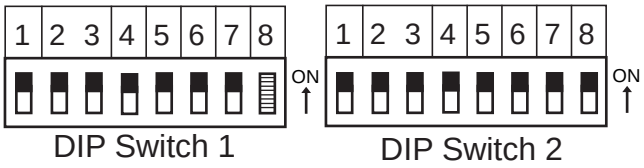
This detects the DIP switch condition. Perform the test given in the following steps.

1) Set all switches of the DIP switch 1 ON and supply the power to the DBV-30X. Check the Indication LEDs located on the faceplate are blinking and Condition LED's red, yellow and green LED light.
2) Set the SW1-8 OFF to start the test. The blinking LEDs turn OFF.
3) Set the DIP Switch SW1-1 to SW1-7 ON. Confirm the red, yellow and green LEDs are blinking once.



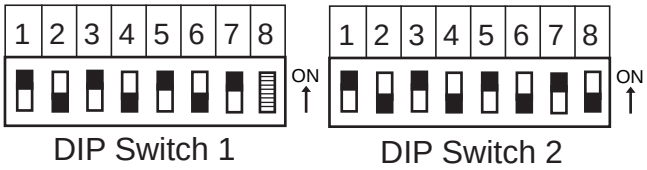
Condition LED		
R	Y	G
1	1	1

4) Set the DIP Switch SW1-1 to SW1-7 and SW2-1 to SW2-8 ON. Confirm the red, yellow and green LEDs are blinking twice.



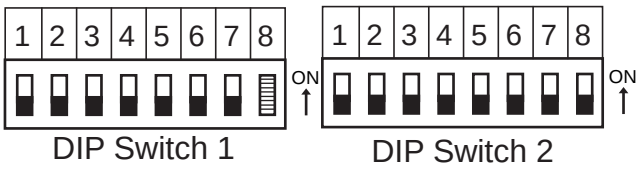
Condition LED		
R	Y	G
2	2	2

5) Set the even swiches (SW1-2, SW1-4, SW1-6, SW2-2, SW2-4, SW2-6 and SW2-8) OFF. Confirm the red yellow and green LEDs are blinking three times.



Condition LED		
R	Y	G
3	3	3

6) Set the odd switches (SW1-1, SW1-3, SW1-5, SW1-7, SW2-1, SW2-3, SW2-5 SW2-7) OFF. Confirm the red, yellow and green LEDs are all OFF.

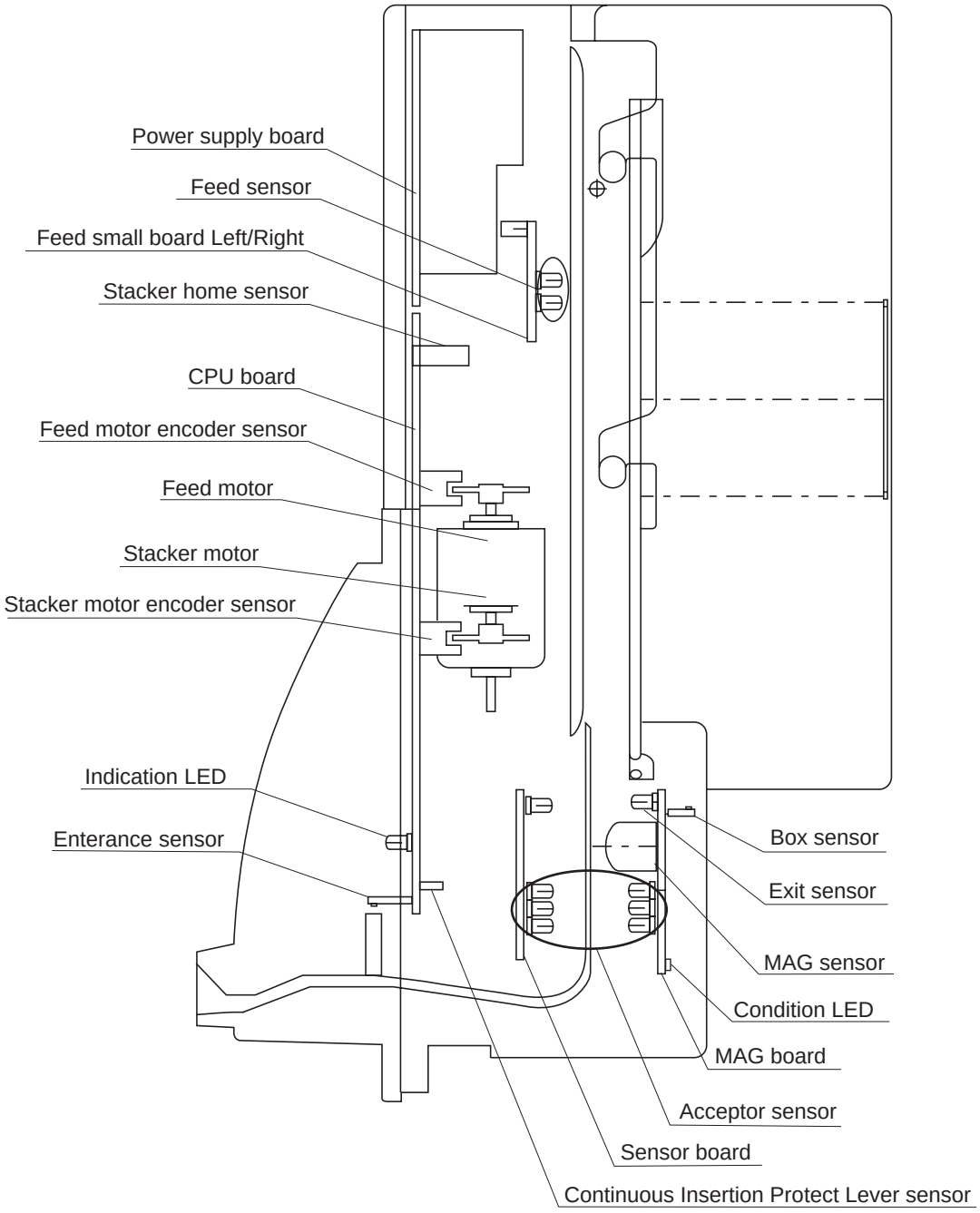


Condition LED		
R	Y	G

7) This is the end of the DIP Switch Test. To finish the test, set the DIP Switch SW1-8 OFF and turn the DBV-30X unit's power OFF.

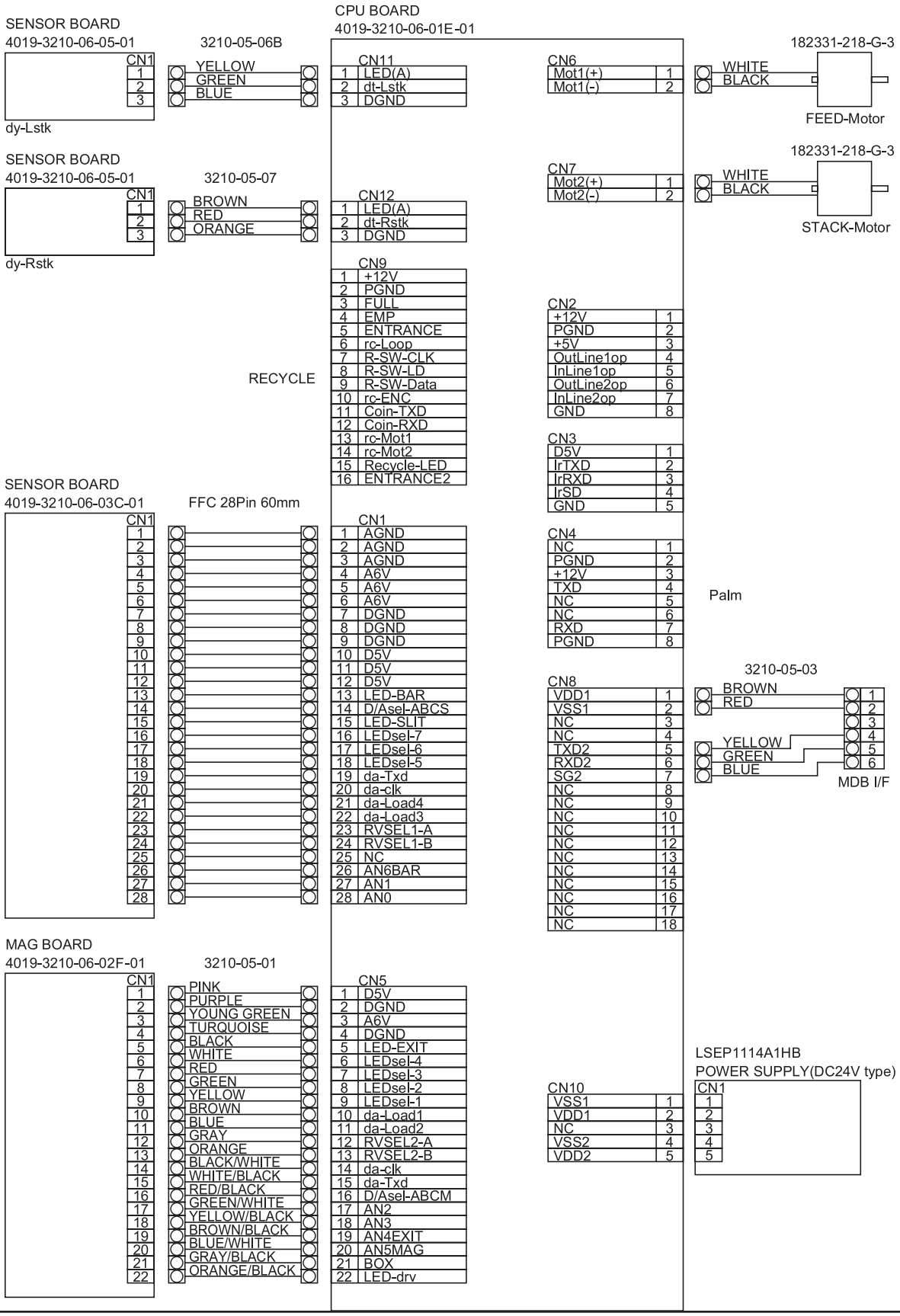
- **If any of the LED status are different from above, the DIP switch/CPU board failure may occur. To change the CPU board, refer to 3-5. How To Remove Circuit Board. If the erorr is not solved, contact JCM.**

4-4. Sensor, board and motor location

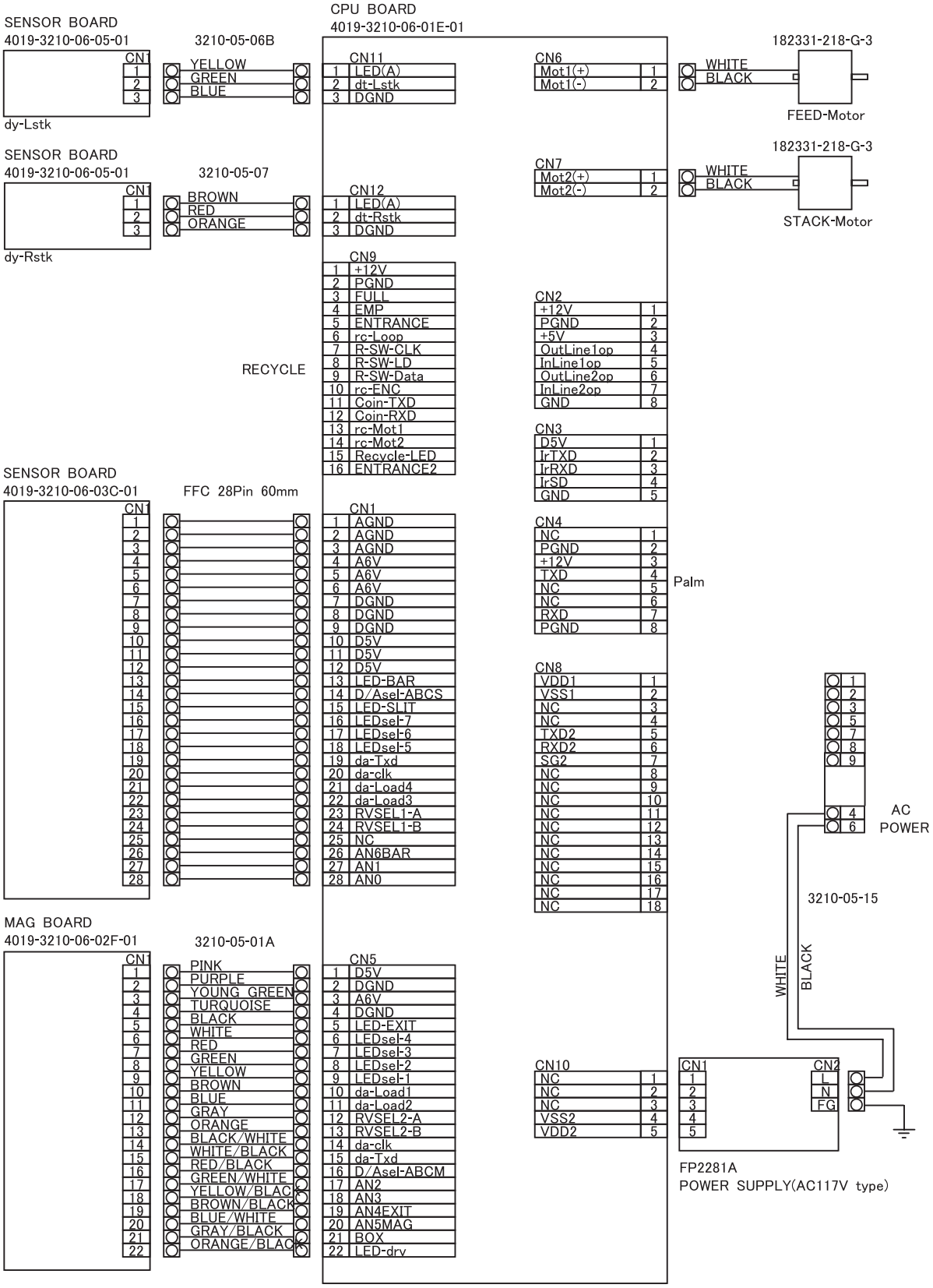


4-5. Cable Diagram

4-5-1. DBV-301 Cable Diagram



4-5-2. DBV-302 Cable Diagram



Bill Acceptor
DBV-30X-SU
DBV-30X-SD

CHAPTER 5

Contents

Software Download and Adjustment

Issue 03/2006

JAPAN CASHMACHINE CO., LTD.

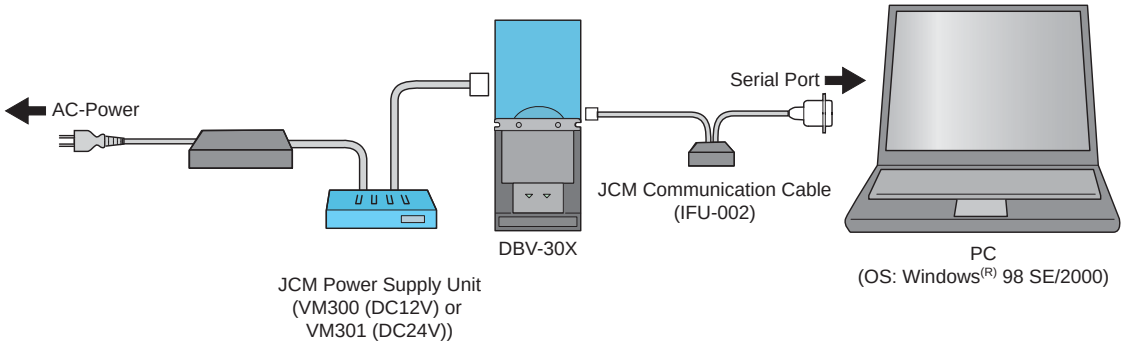
5-1. Software Download

This section describes how to download a software program from your PC to DBV-30X unit. When upgrading the software or replacing the CPU board, please download the software.
When downloading the software program from your Palm to DBV-301 unit, refer to 5-3. Using Palm.

5-1-1. Tools Required

When downloading the software program, the following items are required.

- DBV-30X unit
- JCM Power Supply unit (VM300 (DC12V), Part No.:116477) or (VM301 (DC24V), Part No.: 1164480)
- JCM Communication cable (IFU-002, Part No.: 100157) or
  (3280-03-15 Box 12V Relay Harness, Part No.:116490)
- PC (Windows(R) 98 SE/2000/MS-DOS(R) Version 5.x/6.x with RS-232C serial port)
- Download Program (DWN.exe or DOWNLOAD(V***).exe)
- Software Program (Ex.: DBV301SU.USA)



5-1-2. Initial Setting

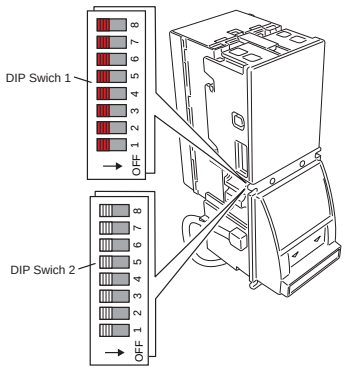
Before downloading the software, perform the following steps.

1) Refer to the diagram above to connect the cables/harnesses properly.

- **When connecting the harness to the DBV-30X unit, be sure the power of VM30X is OFF. Failure to do so may cause electric shock and/or permanent damage to the device.**

2) Set the DIP switches SW1-1, 1-6, 1-7 and 1-8 ON and SW1-2 to 1-5 OFF.

Location of DIP switches



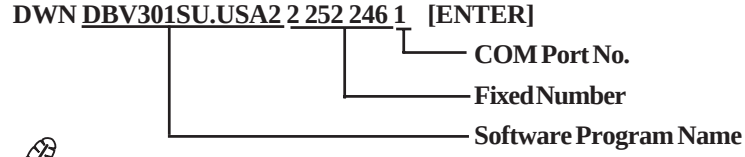
3) Supply the power to the DBV-30X unit.
4) Check the Indication LEDs are blinking and the Condition LED's Red, Green and Yellow LEDs light alternately. This indicates the DBV-30X unit is in the Download Mode.

5-1-3. Starting Dwonload Program

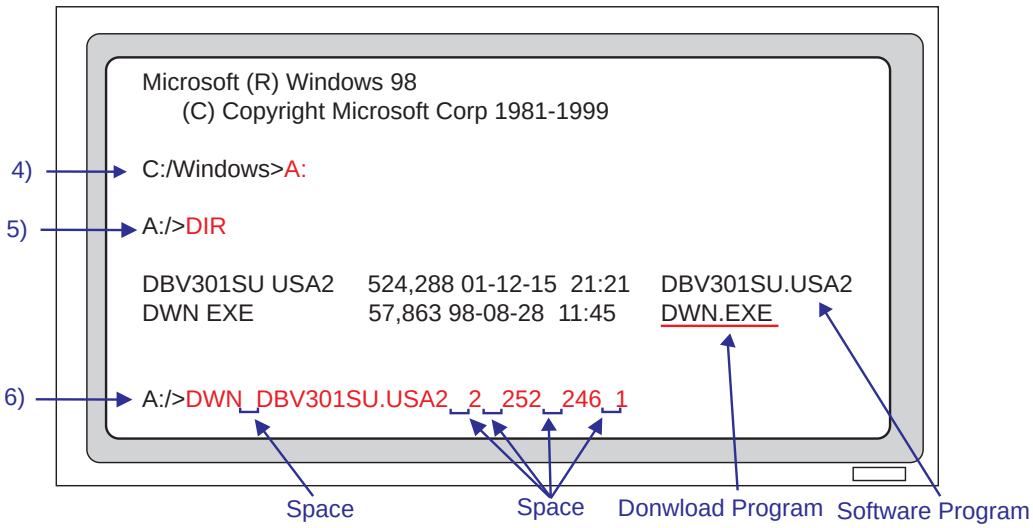
There are 2 procedures, [A] and [B], to download the software program. Depending on the download program you are using, refer to the procedure [A] or [B].

[A] When using the download program (DWN.exe).

1) Turn your PC Power ON.
2) Insert the floppy disk containing the download program (DWN.exe) and the software program (Ex.DBV301SU.USA2) to your PC's floppy disk drive.
3) Start MS-DOS/MS-DOS Prompt/Command Prompt. For detail, see your PC and MS-DOS/Windows manuals .
4) When the menu appears, type your PC's floppy drive name and press [ENTER].
   For example, if your floppy drive is "A" type as:
   A: [ENTER]
5) To get the list of file names in the floppy disk, type as:
   DIR [ENTER]
6) Find the file name of software program and enter the parameters as shown in the diagram below. For example, if the file name is DBV301SU.USA2 and your PC's COM Port No. is 1, type as:
   DWN DBV301SU.USA2 2 252 246 1 [ENTER]

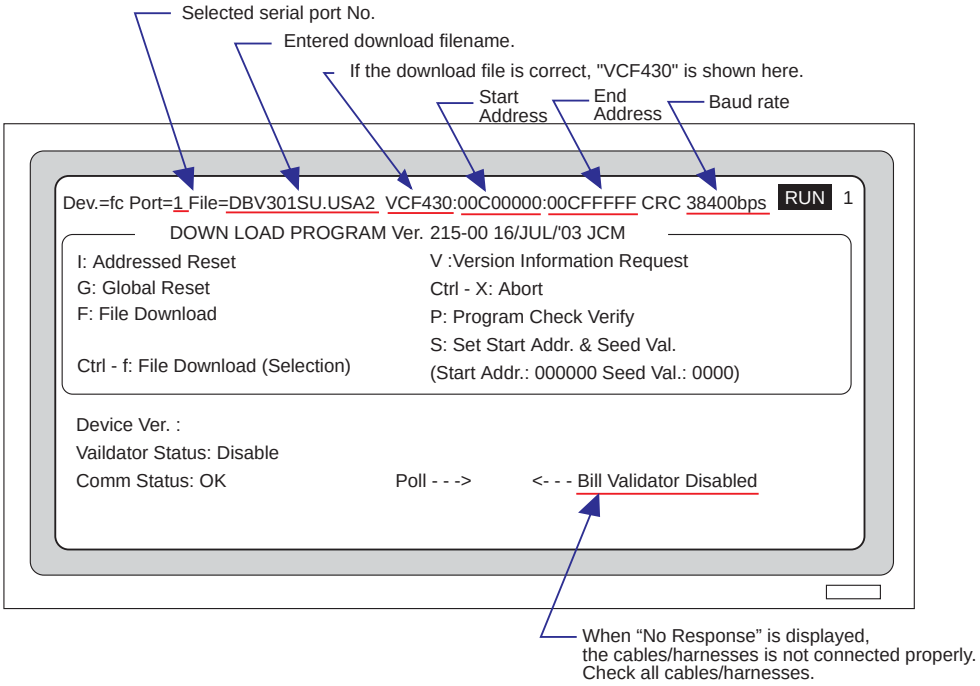


Note- Please change the file name of the software program if necessary.



7) When the program starts, the following screen appears.

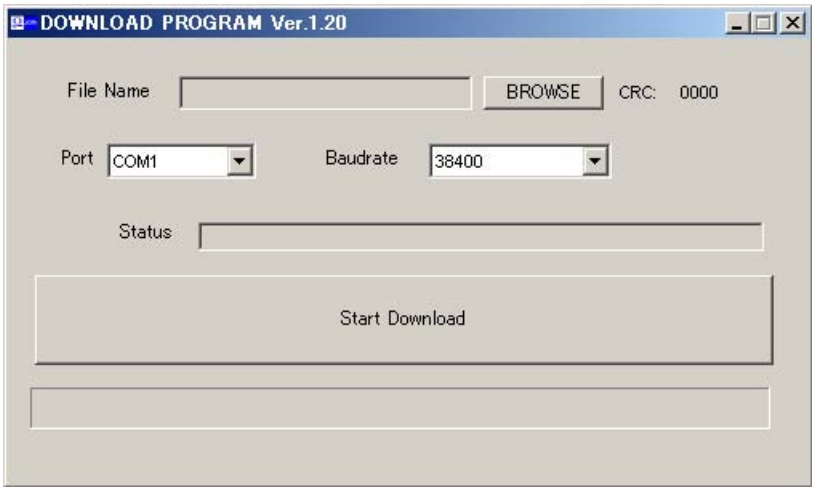
Note - If the download file is correct, "VCF430" appears on the top line.



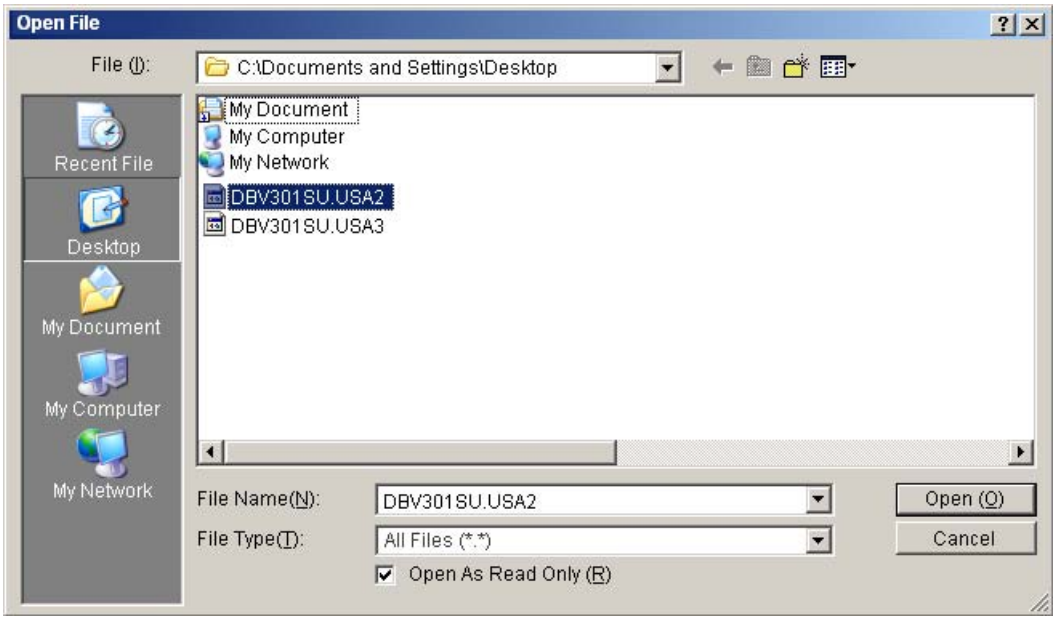
8) Press [F] key (capital letter) to start the download.
9) When the download is completed, Check sum (CRC) is displayed.
10) Press [Ctrl] + [X] key to exit the download program.
11) To exit the MS-DOS/MS-DOS prompt/Command Prompt, enter as;
EXIT [Enter]

[B] When using the download program (DOWNLOAD(V**).exe).

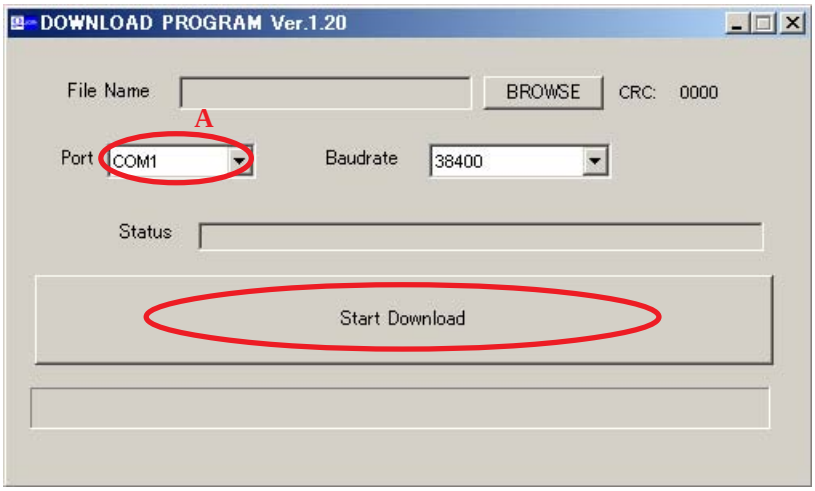
1) Double click the DOWNLOAD(V***).exe and then following the screen will appear.



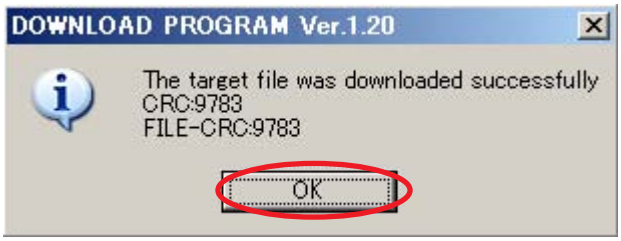
2) Press the [BROUSE] button and then the Open File Window will appear (See Fig-46). Select the software you want to download.



3) Select your PC's COM Port No. from A and then Press the [Start Download] button.



4) When the downloading is completed, the following message will appear.



5) Press [OK] button to close the message. This is the end of the software download.

5-2. Adjustment

This section describes how to adjust the DBV-30X unit. When the DBV-301 unit's Acceptance Rate get lower or DBV-30X unit's CPU/MAG/Sensor board is replaced, please be sure to adjust the DBV-301 unit.

5-2-1. Tools Required

When adjusting the DBV-30X unit, the following items are required.

- DBV-30X (with cash box)
- PC (Windows(R) 98 SE/2000 with RS-232C Communication Port)
- JCM Power Supply unit (VM300 (DC12V), Part No.:116477 or VM301 (DC24V), Part No.: 1164480)
- JCM Communication cable (IFU-002, Part No.:100157) or
  (3280-03-15 Box 12V Relay Harness, Part No.:116490)
- Adjustment Program Installer (setup.exe/SETUP.LST/Cab300.CAB)
- White Reference Paper (KS-059, Part No.:111542)
- Black Reference Paper 1 (KS-060, Part No.:111541)
- Black Reference Paper 2 (KS-061, Part No.:111540)

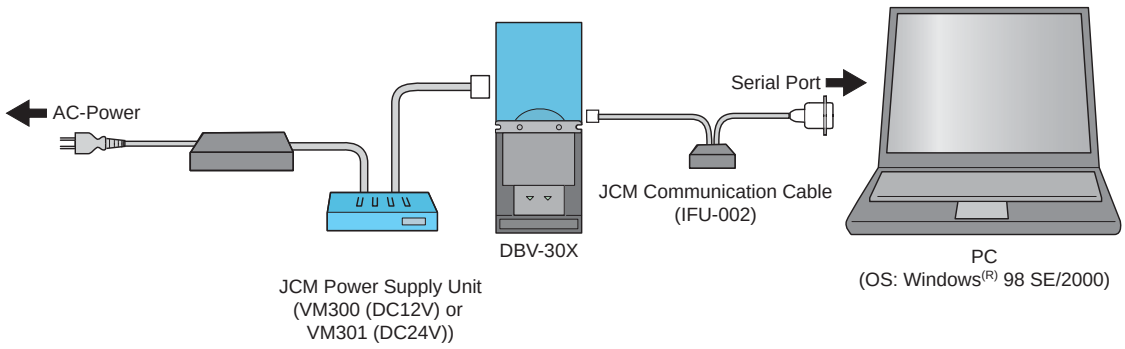
5-2-2. Installing the Adjustment Program (Cab300.exe)

When installing the adjustment program (Cab300.exe), follow the staps as shown below.

1) Copy the adjustment program installer (setup.exe/SETUP.LST/Cab300.CAB) to your PC.
2) Double click the setup.exe to start the installation.
3) Follow the instruction as shown on the screen and complete the installing.

5-2-3. Initial Setting

Before adjusting the DBV-30X unit, perform the following procedure.



1) Refer to the diagram below to connect the cables/harnesses properly.

- **When connecting the harness to the DBV-30X unit, be sure the power of VM30X is OFF. Failure to do so may cause electric shock and/or permanent damage to the device.**

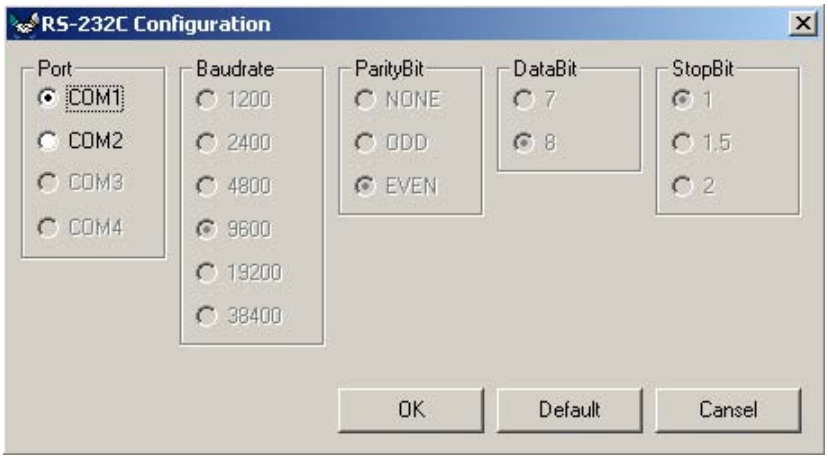
2) Set the SW1-8 ON and turn the VM30X unit's power ON.
3) Check the indication LEDs are blinking and the condition LED's green, yellow and red LEDs light. This indicates the DBV-30X unit in the Test mode.

5-2-4. Adjustment Procedure

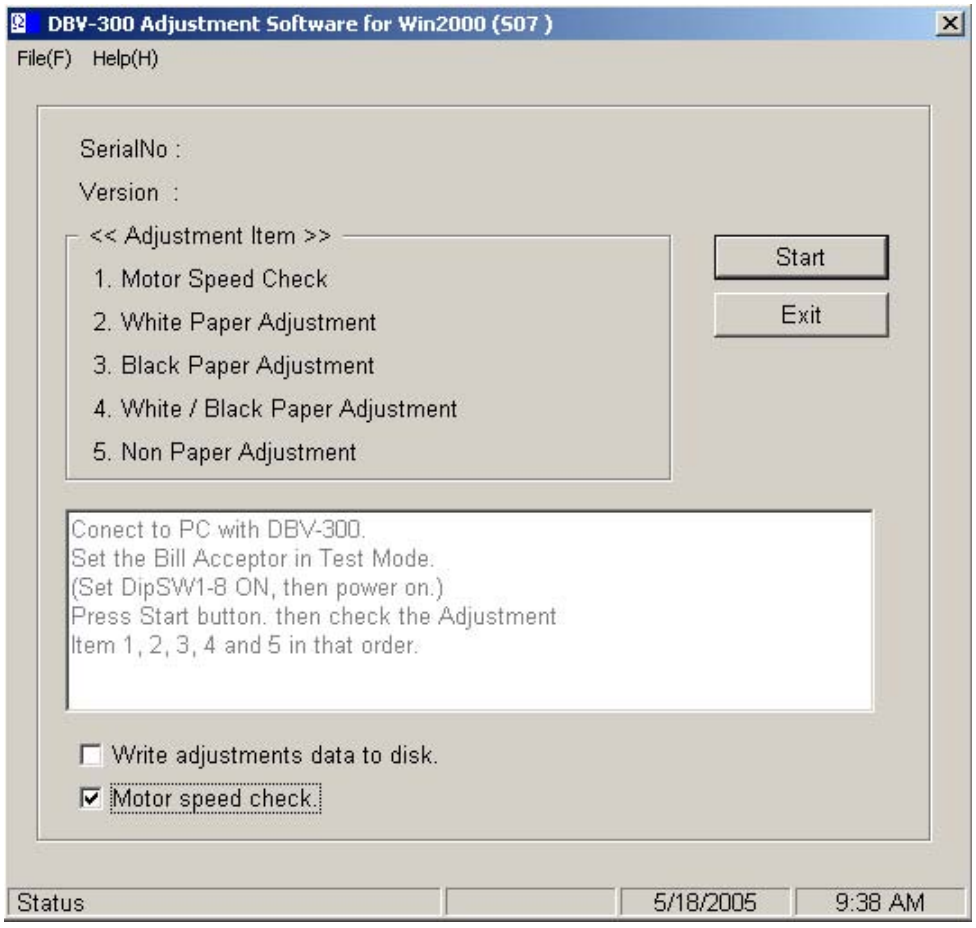
When adjusting the DBV-30X unit, follow the instruction below.

- **If an error occurs while adjusting the DBV-30X unit, follow the instruction of the Adjustment program or turn the DBV-30X unit's power OFF and the perform the adjustment again.**

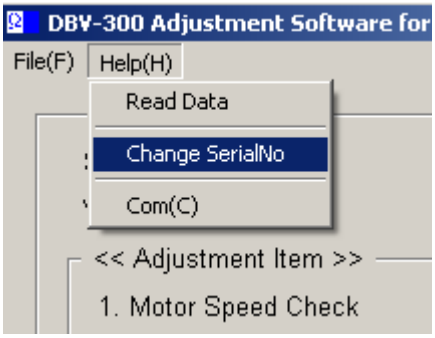
1) Double click the Adjustment Program (Cab300.exe), then the following window will appear. Set your PC's COM Port No. and click [OK] Button.

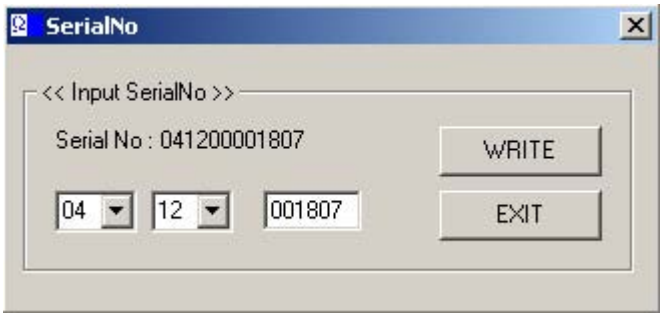


2) Then the DBV-300 Adjustment program will appear.



- **When replace the CPU board, be sure to write the Serial No. into the DBV-30X unit. Check the DBV-30X unit's Srial No. and write from the menu bar's [Help]-[Change Serial No.].**

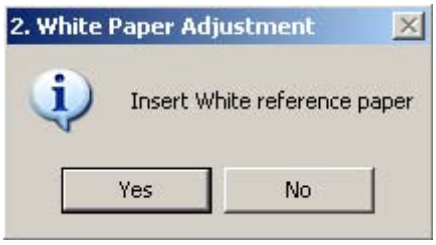




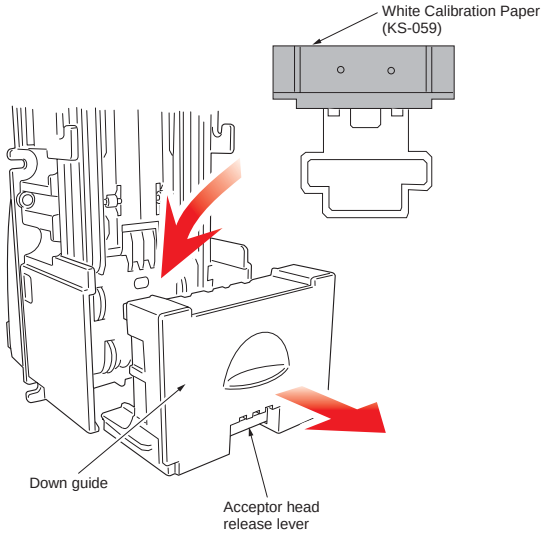
3) Click [Start] Button to start the adjustment. The Motor Speed Check (Adjusment item 1) will start.

- **Be sure to set the cash box in the DBV-30X unit.**

4) When finish the Motor Speed Check, the following message window will appear.

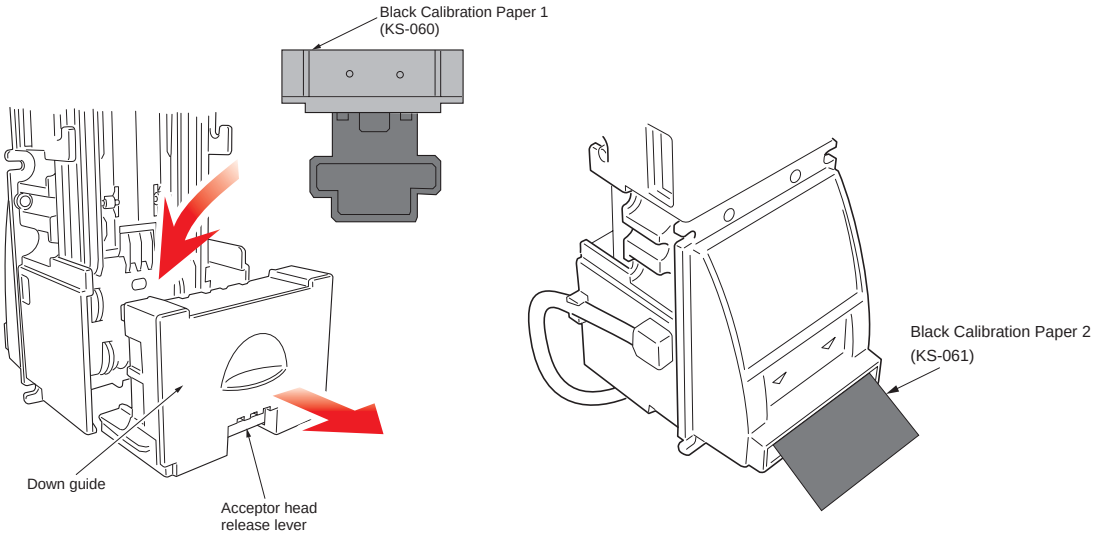


5) Remove the cash box and set the White reference paper to the down guide. To start the White Paper Adjustment (Adjustment item 2), click [Yes] Button.



6) When finish the White Paper Adjustment, the following message window will appear.

7) Open the down guide and remove the White Reference Paper. Set the Black Reference Paper 1 to the down guide and insert the Black Reference Paper 2 to the bill insertion slot.

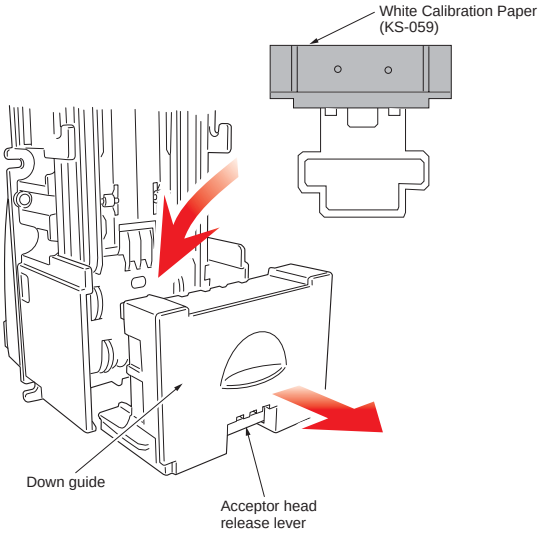


8) To start the Black Paper Adjustment (Adjutment item 3), click the [Yes] Button.

9) When finish the Black Paper Adjustment, the following message w indow will appear.

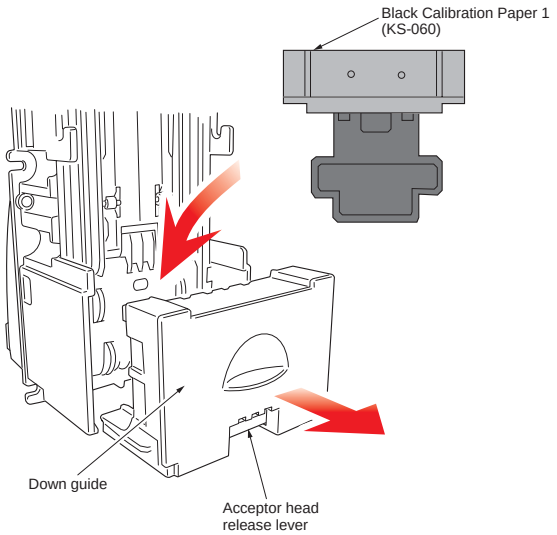
10) Remove the Black Reference Paper 1 and 2 and set the White Reference Paper to the down guide. Then click [OK] Button to start the White level adjustment of the White/Black Paper Adjustment (Adjustment item 4).

- **Be sure not to forget to remove the Black Reference Papaer 2 from the faceplate.**

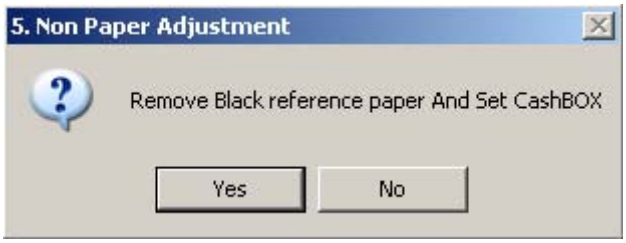


11) When finish the White level adjustment of the White/Black Paper Adjustment, the following message window will appear.

12) Remove the White Reference from the down guide and set the Black Reference Paper 1. Then click [OK] Button to start the Black level adjustment of the White/Black Paper Adjustment.



13) When repeat from the step 9) to step 12) several time, then the following message window will appear.



14) Remove Black ReferencePpaper from the down guide and set the cash box in the DBV-30X unit.

15) Click the [Yes] Button to starts Non Paper Adjustment (Adjustment item 5). Then the following message window will appear.

16) Remove the cash box and click [OK] Button to start the Non Paper adjustment.

17) When finish the Non Paper Adjustment, the following message window will appear.

18) Click [Yes] Button to write the adjustment data to the DBV-30X unit.

19) When finish the data writing, the following message window will appear.

20) This is the end of the adjustment.

5-3. Using Palm

This section describes how to use the Palm connecting with DBV-30X unit. When usin the Palm, the following features can be used.

- Download the software program to the DBV-30X unit
- Execute the DBV-30X unit's diagnostic
- Get the DBV-30X Accepting Log

5-3-1. Items required

When using the Palm, the following items are required.

- DBV-30X unit
- Palm(R)'s Tungsten™ C
- Communication Cable (3280-03-15 Box 12V Relay Harness, Part No.:116490)
- File Conversion Program Installer (setup.exe/SETUP.LST/PdbConvEN.CAB)
- Palm Setting Program (ID003.prc)
- Download Program (ID003DWN.prc)
- Software program (Example:DBV301SU.USA2)

5-3-2. Installing File Conversion Program (PdbConvEn.CAB)

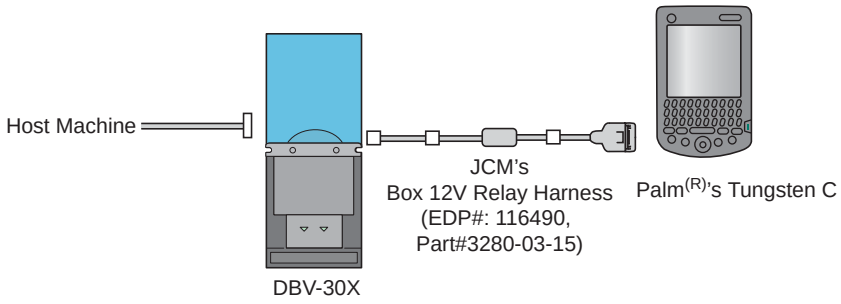
Install the File Conversion Program (PdbConvEn.CAB) follow the procedure as shown below.

1) Copy the File Conversion Program Installer (setup.exe/SETUP.LST/PdbConvEN.CAB) to your PC.
2) Double click setup.exe to start the installation.
3) Follow the instruction as shown on the screen and complete the installing.

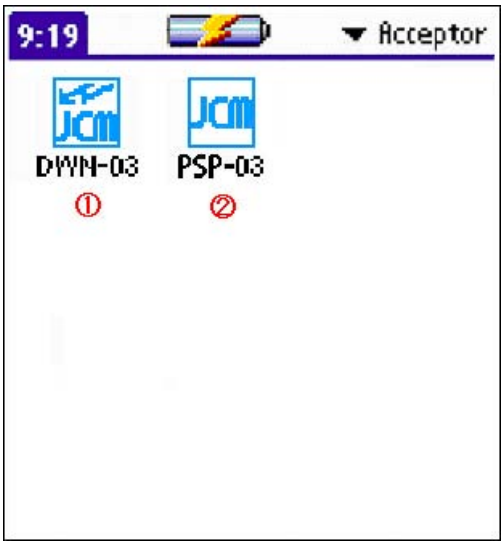
5-3-3. Initial Setting required

Before connecting the palm to DBV-30X, perform the following procedure.

1) Install the Palm Setting Program (ID003.prc) and Download Program (ID003DWN.prc) to your Palm. For details about installing, refer to your Palm's manual.
2) Connect your Palm to the DBV-30X unit with JCM's Box 12V Relay Harness.



5-3-4. Program Overview



① **DWN-03(Program Download)**

DWN-03 can be downloaded the software program with Palm similarly to doing with PC. Please set DIP swith to Download Mode when downloading a software. for Download Mode, rere to 5-1-3. Initial Setting.

② **PSP-03 (Palm Setting Program)**

PSP-03 can be performed the following features.

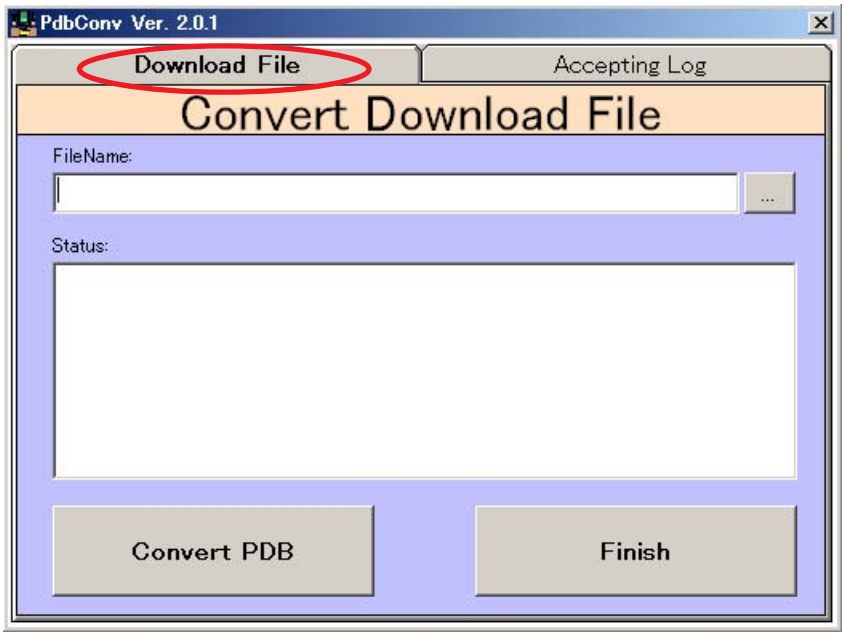
- Execute the diagnostics
- Get the Accepting Log from DBV-301 unit
- Download the software whil communi-cating the host.

5-3-5. Download the software program from Palm

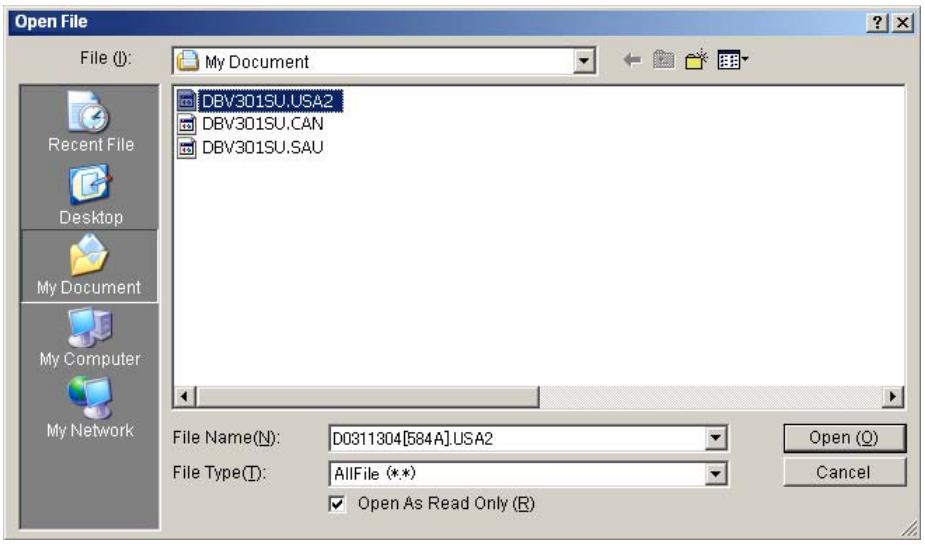
You can download the software program from your palm to DBV-30X unit. Before downloading a software program, you need to convert the software program file into the Palm format.

■File Conversion Procedure

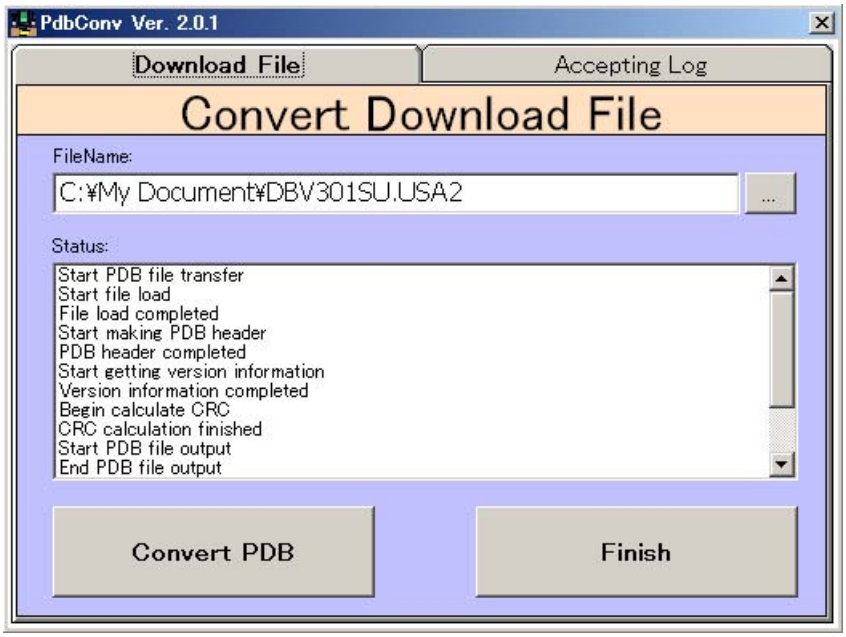
1) Double click the PdbConvEn.exe and the following window appear.
2) Check the [Download File] Tab is selected.



3) Click [...] Button and then select the software program you want to download. Then click [Open(O)] Button.



5) Click [Convert PDB] Button to start the file conversion. Palm format file (DBV301SUUSA2.pdb) is created in the same folder.



6) When finish the file conversion, click the [Finish] Button to close the window.

7) Install the DBV301SU. pdb to your palm.

■Download Procedure

There are two procedures (A) and (B) to download the software program.

(A) Download the software program in the download mode.

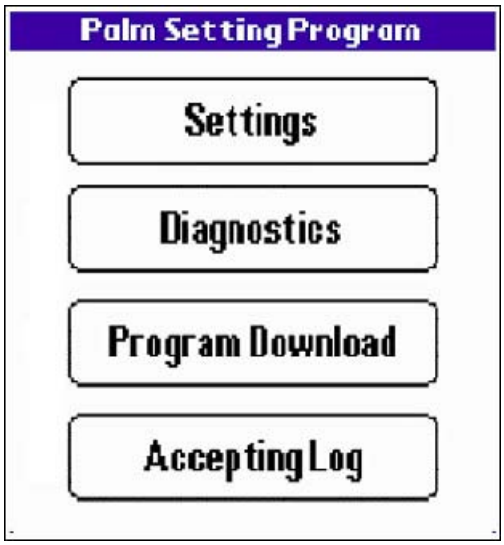
1) Turn the power OFF, then set the DBV-30X unit DIP Switches SW1-1, 1-6, 1-7 and 1-8 ON and SW1-2 to 1-5 OFF.
2) Check the indication LEDs are blinking and the condition LED's green, yellow and red LEDs light alternately. This indicates the DBV-301 unit in the Test mode.
3) Supply the power to the DBV-301 unit.
4) Tap the DWN-03 (Download Program) icon, then the following screen will appear.

5) Tap the Acceptor's area (A) or [REC] Button to get the name of the present software and boot in the DBV-30X unit.
6) Tap the Down Load File's area (B) to select the software program you want to download.
7) Tap [send] Button to start downloading.
8) When downloading is completed successfully, the screen will return to the Program Download screen automatically.

- **While downloading the software program, be sure not to have any impact to the DBV-30X unit and the palm.**

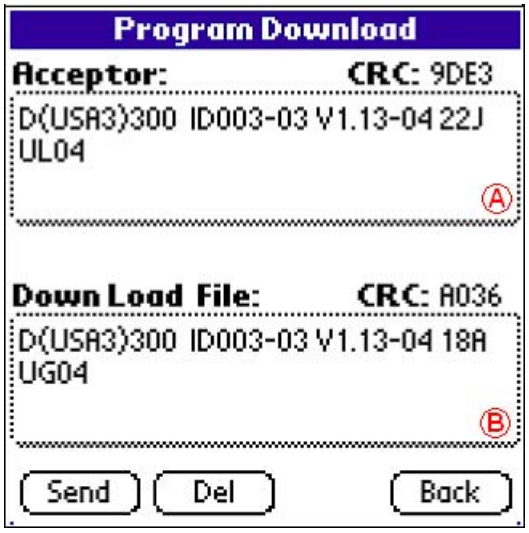
(B) Download the software program while communicating with a host machine.

1) Tap on the Palm Setting Program (PSP-03) icon, then the following screen will appear.



2) Tap the [Program Download] Button, then the following screen will appear.

3) Tap the Acceptor area (A) to get the name of the present software and boot in the DBV-30X unit.



4) Tap on the Down Load File area (B) to select the software program you want to download.

5) Tap [send] Button to start downloading.

- **While downloading the software, be sure not to have any impact to the DBV-30X unit and the palm.**
- **When cancelled downloading, PSP-03 (Palm Setting Program) cannot retry downloading the software program. In this case, set the DIP switches to enter the download mode and download the software program with Dwonload Program (DWN-03). For details, refer (A) Download the software program in the download mode.**

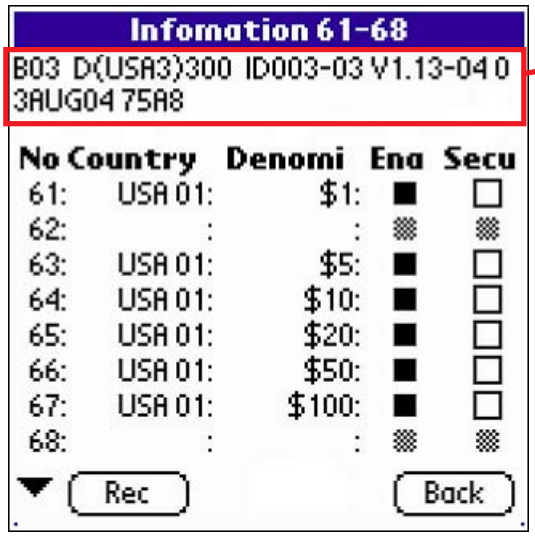
6) When downloading is complete successfully, the screen will return to the Program Download screen automatically.

5-3-6. Getting the DBV-301 unit's setting information

1) When you want to get the DBV-30X unit's setting information depending on the denomination, Palm Setting Program the [Setting] Button. When tap the [Setting] Button, the following screen will appear.

- When tap the [Acceptor] Button, the Acceptor setting screen appears. Although you can change the acceptor setting with Acceptor Setting screen, be sure NOT to change the settings. Use this feature as reference only, otherwise the settings of DBV-30X unit will change.

2) Tap the [Information...] Button, the DBV-30X unit's setting information will be displayed.



Display the software program name and boot installed in DBV-30X unit.

No

Indicate the allocated number depending on the denomination.

Country

Indicate the Country code.

Denomi

Indicate the denomination.

Ena

Indicate the denomination setting information.

■ : Enabled
□ : Disabled
▩ : Not used

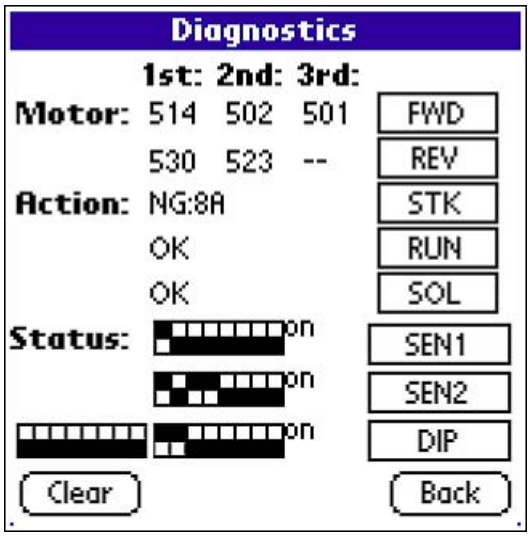
Secu

Indicate the security level.

□ : Normal
■ : High

5-3-7. Execute the Diagnostics

You can execute the diagnostics from your Palm. Tap the [Diagnostics] Button of the Palm Setting Program, then the following screen will appear. Tap the Button to start the diagnostics you wan to execute. Tap any Button to finish the test.



FWD

Execute the Transport Motor Forward Rotation Test.

REV

Execute the Transport Motor Reverse Rotation Test.

STK

Execute the Stacker Test.

If the test result is OK, [OK] will appear. If an error occurs, [NG + Error code] will appear. For details about Error Code, refer to ID-003 Communication Specification.

RUN

Execute the Running Test.

If the test result is OK, [OK] will appear. If an error occurs, [NG + Error code] will appear. For details about Error Code, refer to ID-003 Communication Specification.

SOL

Execute the Solenoid Test

If the test result is OK, [OK] will appear. If an error occurs, [NG + Error code] will appear. For details about Error Code, refer to ID-003 Communication Specification.

SEN1/ SEN2

Display the Sensor's status.

DIP

Display the Dip Switch status.

Clear

Clear the Diagnostics screen.

Back

Return to the Setting Program Screen.

5-3-8. Get the Accepting Log from DBV-30X unit

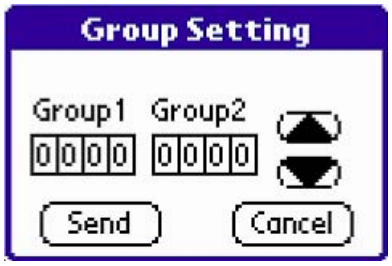
You can get an accepting log data of the DBV-30X unit with Palm.

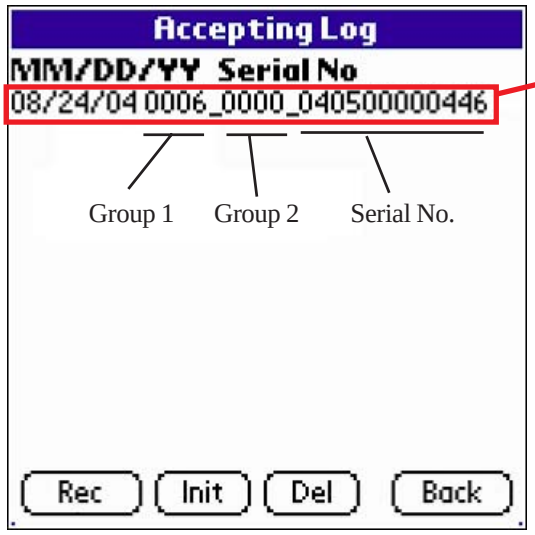
■How to receive an accepting log data

1) Tap on the Palm Setting Program's [Accepting Log] Button.

Note

- You can group the data from [Menu] - [Option] - [GroupNo...]. Set the Group No. and click on the [Send] Button.





Accepting Log

2) Tap on the [Rec] Button to receiving the DBV-301 unit's log data.

3) Tap on the received log data, then the Accepting Log (1) screen will appear.
You can see the Date of received log data, Group No., Serial No., Number of supplying the power, inserting bill, unknown error, warning and abnormal.
Tap the [Next] Button.
If you want to return to the previous screen, Tap the [Back] Button.

Accepting Log (2)

Last Meter:

No	Denomi	Dir	No	Denomi	Dir
1	1	FA	9	5	BA
2	1	FB	10	5	FB
3	1	BB	11	10	BA
4	1	FB	12	5	BB
5	1	FA	13	1	FB
6	1	FA	14	5	FA
7	1	FB	15	1	BA
8	1	FB	16	20	FB

Next Back

4) Accepting Log (2) screen shows the denomination and insertion direction of the last 16 billsaccepted .

Dir FA : Forward A
FB : Forward B
RA : Reverse A
RB : Reverse B

Forward

Reverse

Tap [Next] Button to continue.

Accepting Log (3)

No	Denomi	Accept	Reject
1	1(95)	10	0
2	5(93)	0	0
3	5(99)	4	0
4	10(93)	0	0
5	10(99)	1	0
6	20(93)	0	0
7	20(96)	1	0
8	20(04)	0	0

Next Back

5) Accepting Log (3) screen shows Number of the accepting/Rejecting depending on each denomination.
Tap the [Next] Button to continue.

Accepting Log (4)

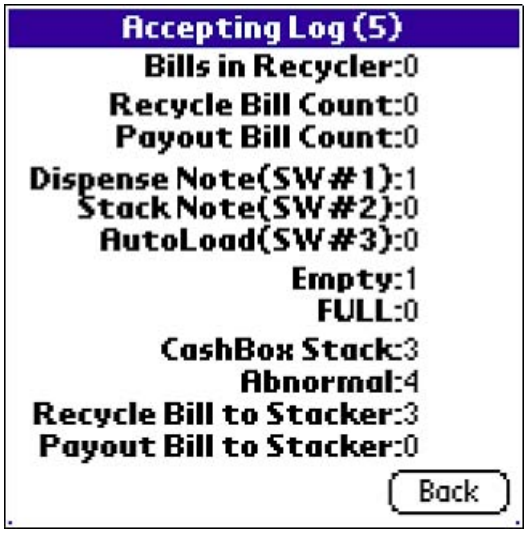
Abnormal Count:

No	Abn	War	RC	No	Abn	War	RC
1	0	0	1	9	0	0	0
2	0	0	0	10	0	0	0
3	2	0	0	11	0	0	0
4	0	0	2	12	0	0	0
5	0	0	0	13	0	0	0
6	0	0	0	14	0	0	0
7	0	0	1	15	0	0	0
8	0	0	1	16	0	0	0

Next Back

6) Accepting Log (4) screen shows Number of LED blink and frequency error occurred.
No : Number of LED blinking.
Abn : The frequency where the error of the error code occurs is counted.
War : An error not related to accept the bill of the reject code is counted.
RC : Optional Recycler (RC-10) unit's LED

For example, see the enclosed with red square in the diagram on the left.
This indicates the DBV-30X unit's Red LED's three-time-blinking occurred twice.



7) Accepting Log (5) screen shows optional recycler (RC-10) unit's log data.

Bills in Recycler

Number of bills in RC-10 unit.

Recycle Bill Count

The number of bills stored to RC-10 unit during normal transaction (not included the bills autoloaded to RC-10 by pushing the SW#3).

Payout Bill Count

Total number of bills payed out from RC-10 unit during normal transaction (not included the bills dispensed from RC-10 by pushing the SW#1).

Dispense Note (SW#1)

The number of bills dispensed from RC-10 by pushing the DIP Switch SW#1.

Stack Note (SW#2)

The number of bills stacked to cash box by pushing the DIP Switch SW#2.

AutoLoad (SW#3)

The number of bills autoloaded to RC-10 by pushing the DIP Switch SW#3.

Empty

Frequency RC-10 unit went empty.

Full

Frequency RC-10 unit went full.

Cash Box Stack

The number of bills cannot store to RC-10 unit;

- Damaged bills
- Dog-eared bills
- Too soft bills
- Shorter bill

However, in the following cases, it is not counted.

- The denomination is not accepted for recycle.
- RC-10 is FULL.
- An abnormal error occurs in RC-10 unit.
- RC-10 is not connected to DBV-301 unit.

Abnormal

The number of errors occurred in the RC-10 unit.

Recycle Bill to Stacker

The number of bills going to RC-10 unit, but stacked in the cash box.

Payout Bill to Stacker

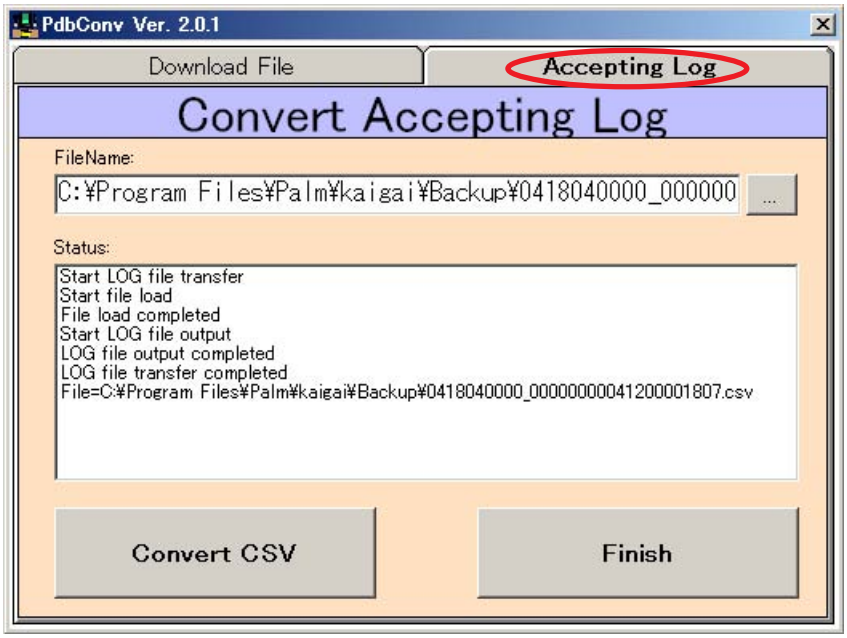
The number of bills paying out from RC-10, but stacked in the cash box.

5-3-9. Convert the Acceptance log data into the CSV format

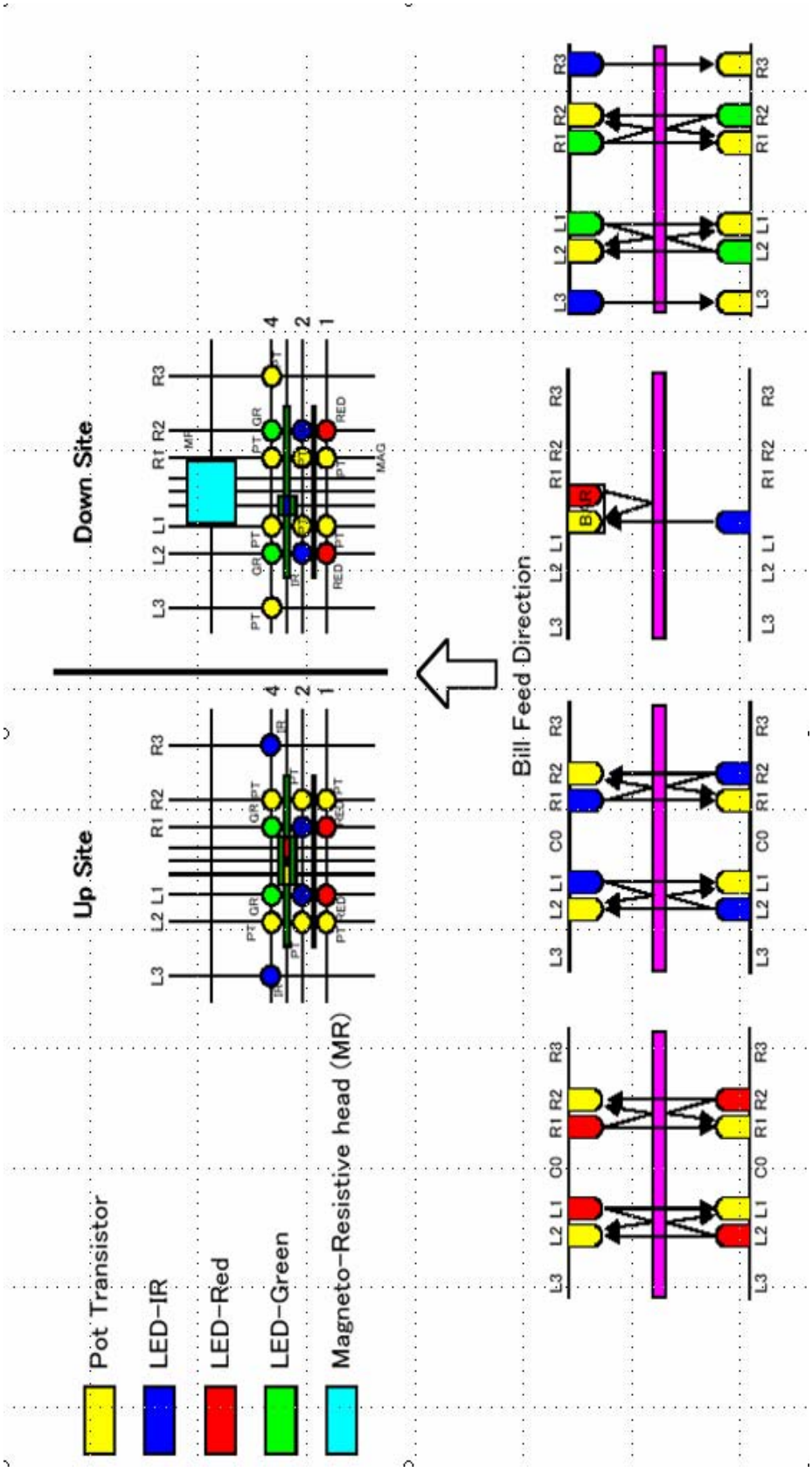
You can convert the log file get from the DBV-30X unit into the CSV format.

■File Conversion Procedure

1) Double click the PdbConvEn.exe and check the Accepting Log Tab is selected.



2) Click [...] Button and then select the log file (0418040000_00000000041200001807) you want to convert into CSV format.
   The log data files are saved as [Program Files] - [Palm] - [your palm's name] - [Backup] Folder. Then click [Convert CSV] Button.
3) When the file conversion finished, click [Finish] Button to close the window.
4) CSV file (0418040000_00000000041200001807.csv) is saved in the same folder as the log file.


Down Site
Up Site
Bill Feed Direction
Pot Transistor
LED-IR
LED-Red
LED-Green
Magneto-Resistive head (MR)

Bill Acceptor
DBV-30X-SU
DBV-30X-SD

CHAPTER 7

Contents

Optional Bill Recycler Unit (RC-10)

Issue 03/2006

JAPAN CASHMACHINE CO., LTD.

7-1. Precautions

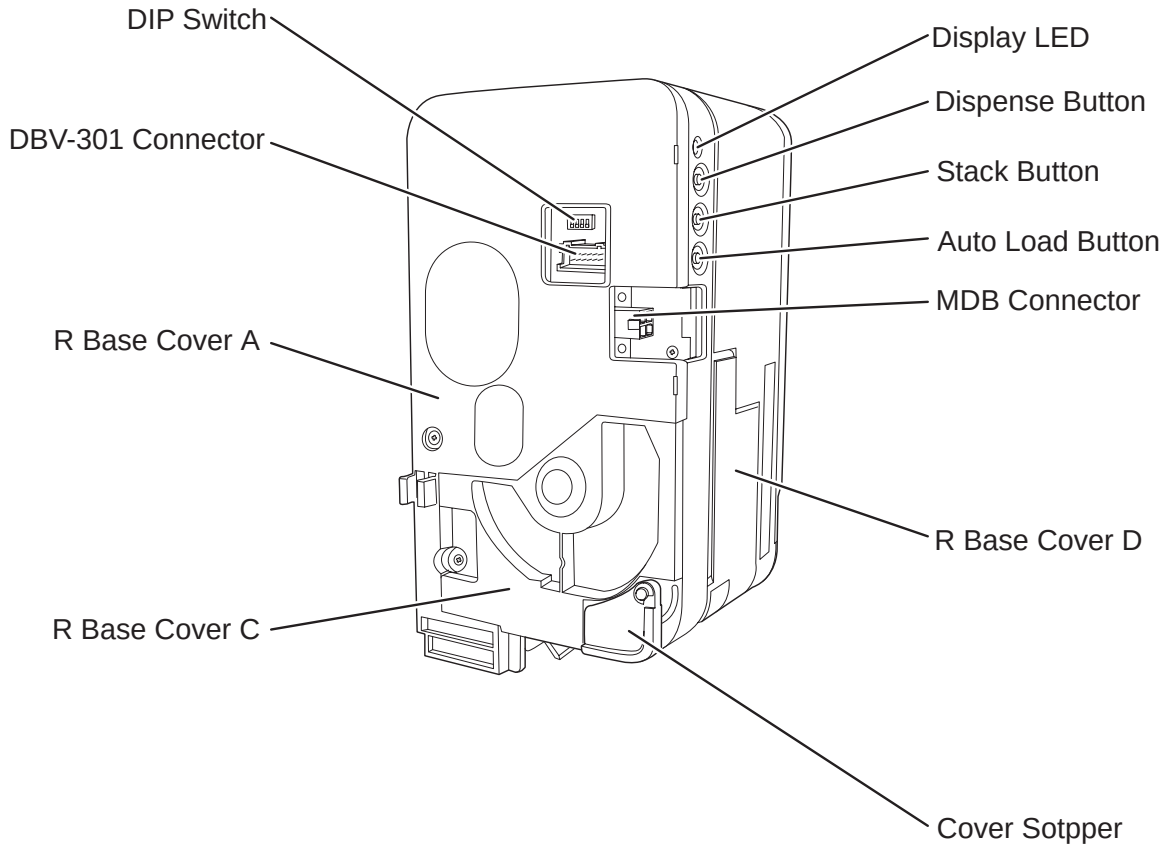
- **RC-10 unit is an optional bill recycler unit for DBV-301-SU unit. When installing the RC-10 unit with DBV-301-SU unit, the interface must be ID-0D3 (MDB interface) and connected to JCM's Coin Changer (OPTIPAY CC). For details, please contact JCM.**

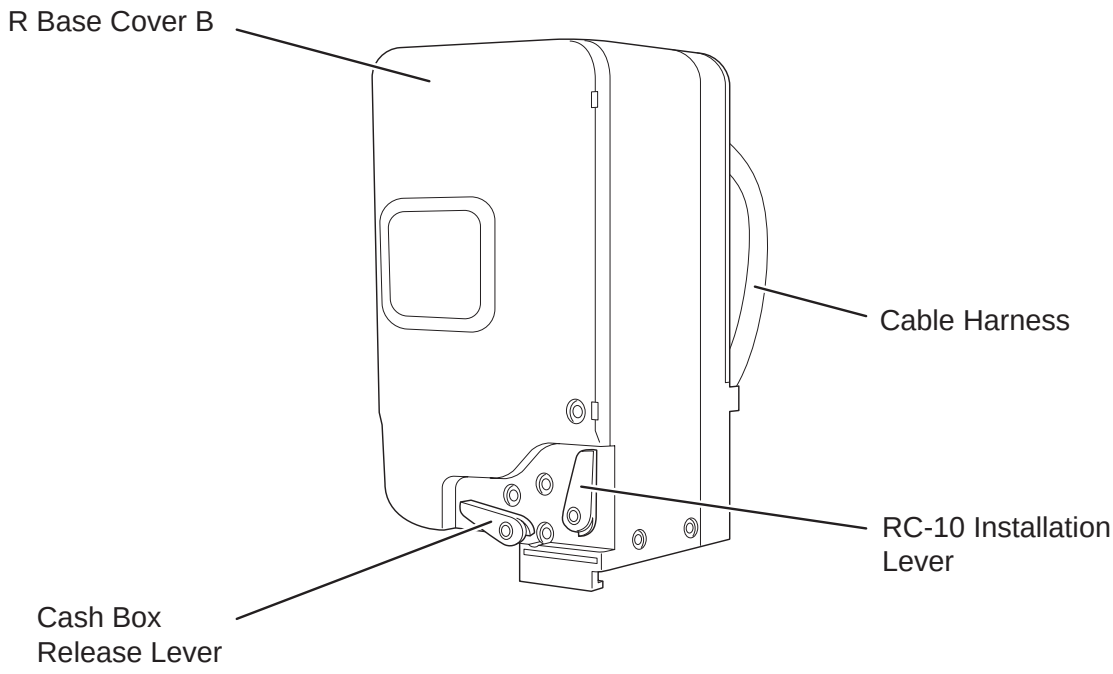
- **Please install the RC-10 unit in the DBV-301-SU unit properly, otherwise the bill jam is occured at the time of dispensing.**

- **Turn OFF the power of DBV-301-SU unit when installing the RC-10 unit, otherwise it may cause damage.**

- **Do not disassemble/remodel the RC-10 unit. There is high-pressure spring inside and it is very dangerous. Please contact JCM when it is necessary to disassemble it at the time of exchanging parts.**

7-2. RC-10 Component Names





7-3. Specifications

7-3-1. Technical Specifications

Recycler Note *1	$1US or $5US
Recycler Capacity *2	10 Notes (Max.)
Processing Speed	Approx. 4 Seconds (from the bill insertion to stacking completion) Approx. 4 Seconds(All processes from the bill dispensing beginning to completion)
Interface	MDB Interface (Protocol:Coin Hopper)
LED	Display LED (Green)

*1 The following bills are not accepted as recycler bill.

- Damaged bills
- Dog-eared bills
- Too soft bills
- Shorter bills

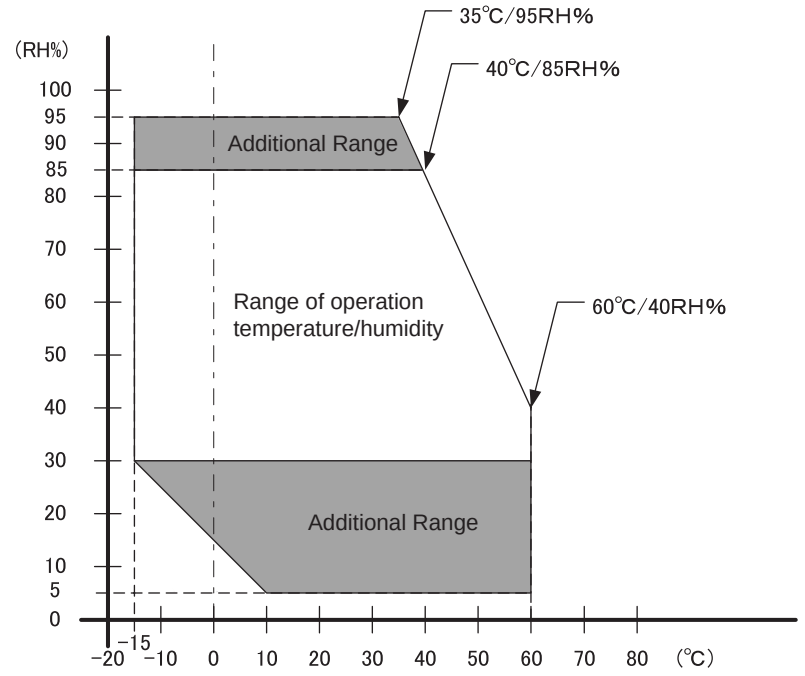
*2 The following condition may change the maximum number of recycler bills.

- Operation Temperature is under -5°C.
- Operation Humidity is under +30%RH.
- When the retry operation occurs depending on the condition of the bills at the stacking time.

7-3-2. Environmental Specifications

Operation Temperature *1	-15°C to 60°C
Storage Temperature	-20°C to 60°C
Operation Humidity *1	+15% to +95% RH (no condensing)
Storage Humidity	+15% to +95% RH (no condensing)
Light Disturbance	Direct sunlight shall be avoided.
Installation	Indoor and Outdoor(not exposed to wind and weather)

*1 Be sure to satisfy the following temperature humidity conditions.



7-3-3. Structural Specifications

Mounting	Holizontal Mounting
Weight *1	Approx. 2.1Kg
Outline Dimentions *1	104.5mm(W) x 426.0mm(H) x 155mm(D)

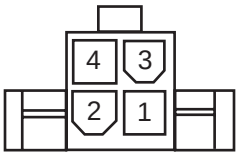
*1 It is a data when RC-10 unit is installed to DBV-301-SU unit.

7-3-4. DIP Switch Settings

ON/OFF setting of the SW1 determines the denomination of the recycler bill.

No.	Function	ON	OFF
SW 1	Denomination of Recycler Bill	$5US	$1US
SW 2	Always OFF		
SW 3			
SW 4			

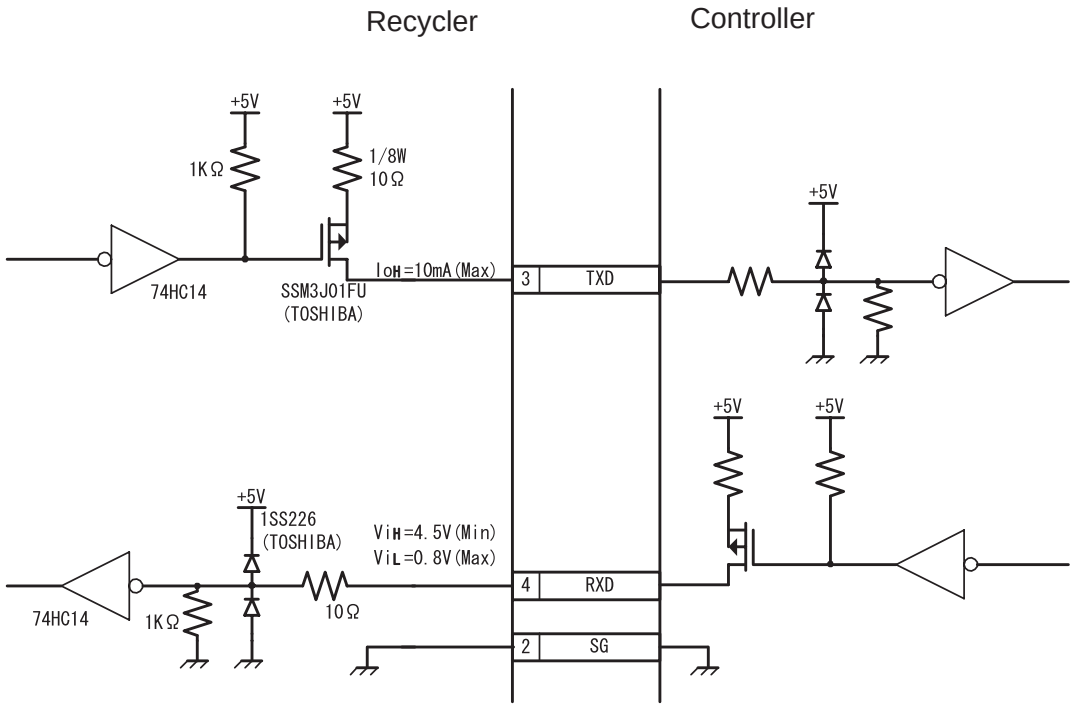
7-4. Connector and Pin Assigment



Header (Light Angle Type) : 5569-04A1(US MOLEX)
Reccommended Housing : 5557-04F (US MOLEX)
Terminal : 5556TL (US MOLEX)
Recommended Wire : String UL1007AWG#22 to 24

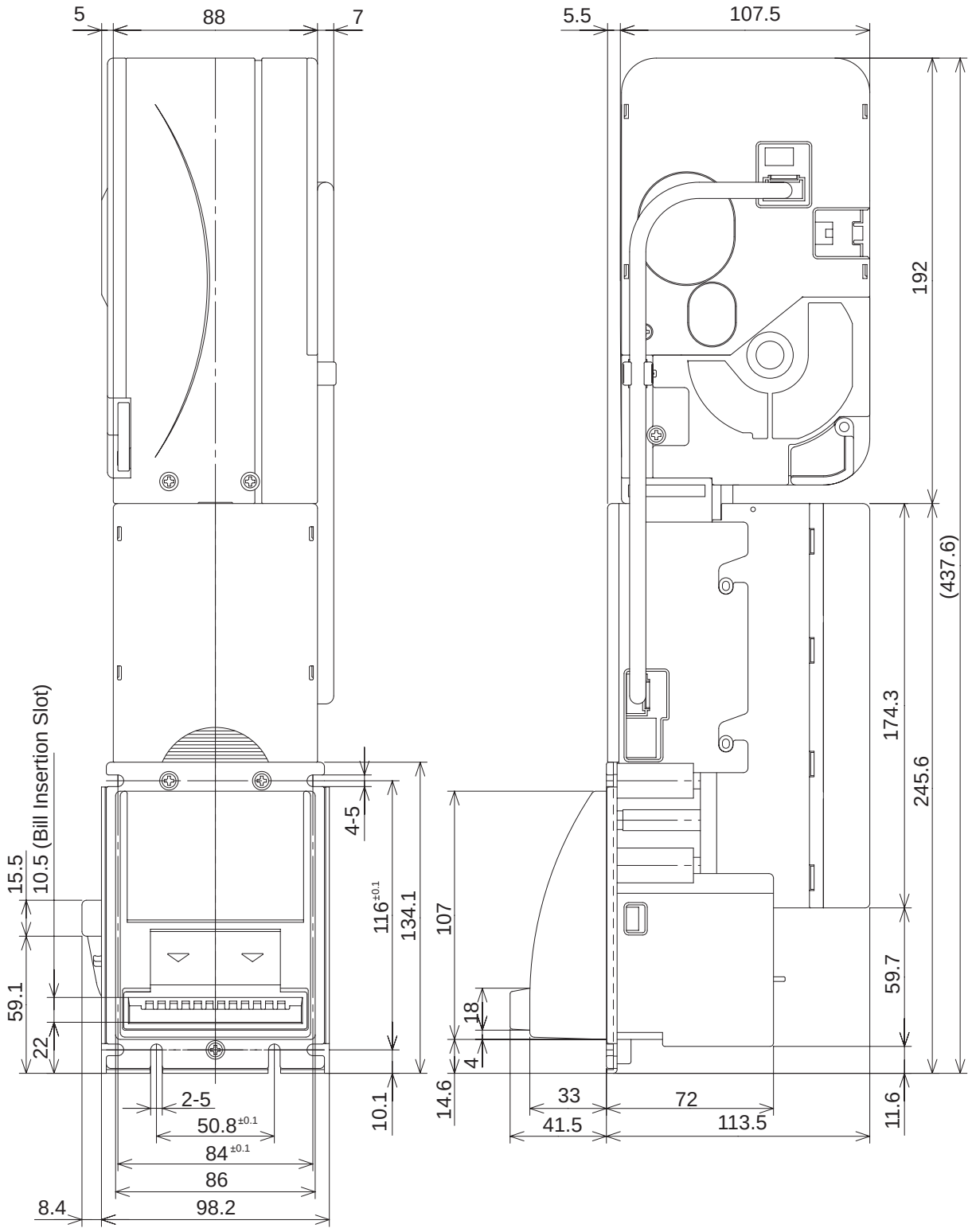
Pin No.	Signal Name	I/O	Function
1	NC		Not Connected
2	SG		Signal Ground
3	TXD	OUT	Output Signal Line from Recycler to Controller
4	RXD	IN	Input Signal Line from Recycler to Controller

◆ Recycler Input/Output Circuit



7-5. Dimension

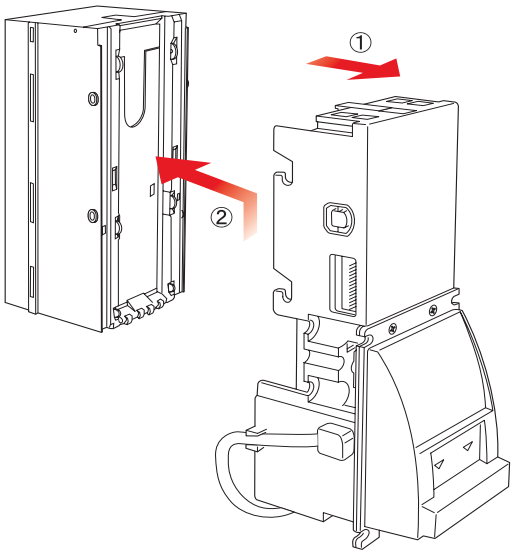
Unit : mm



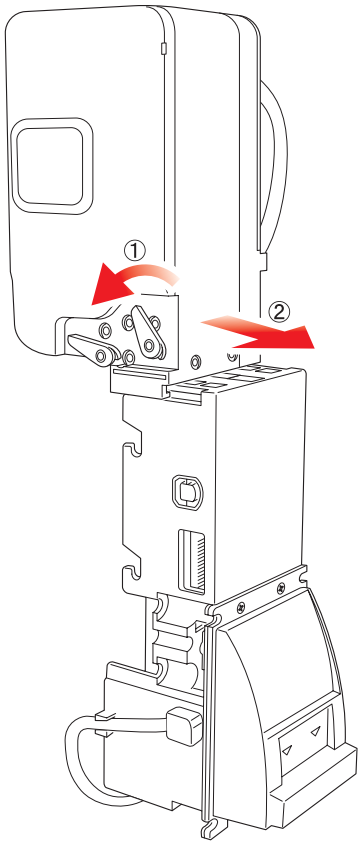
7-6. Installation and Operation

7-6-1. Installing/Removing the RC-10 unit

1) Pull the DBV-301-SU unit's Cash Box Lerease Lever in the arrow (1) direction and remove the cash box in the arrow (2) direction.



2) Pull the RC-10 Install Lever in the arrow (1) direction and slide the RC-10 unit in the arrow (2) direction until it is locked.



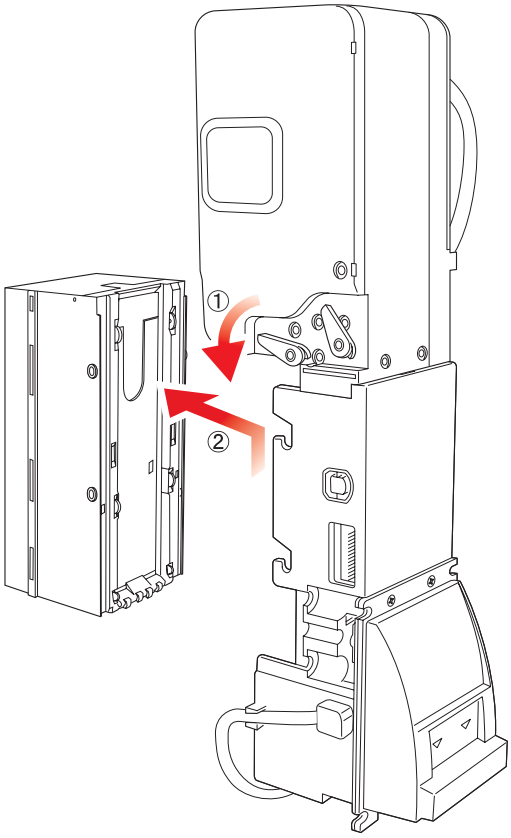
- **Please install the RC-10 unit in the DBV-301 unit properly, otherwise the bill jam is occured at the time of dispensing.**

Note

- When removing the RC-10 unit, pull the RC-10 Install Lever in the arrow (1) direction and remove the RC-10 unit in the arrow (2) reverse direction.

7-6-2. Installing/Removing the Cash Box

1) Pull the RC-10 unit's cash box release lever in the arrow (1) direction and remove the cash box in the arrow (2) direction.



Note

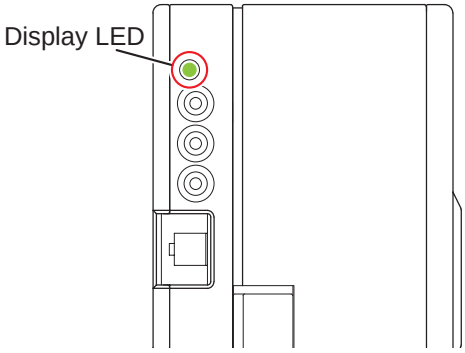
- When installing the cash box to the DBV-301 unit, install the cash box in the arrow (2) reverse direction. The operation of the Cash Box Release Lever is not required.

7-6-3. Autoloading Bills

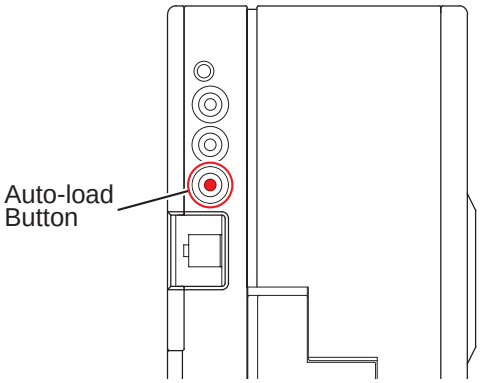
When auto-loading the bill to the RC-10 unit, follow the instruction as shown below.

1) Check the RC-10 unit's display LED lights.

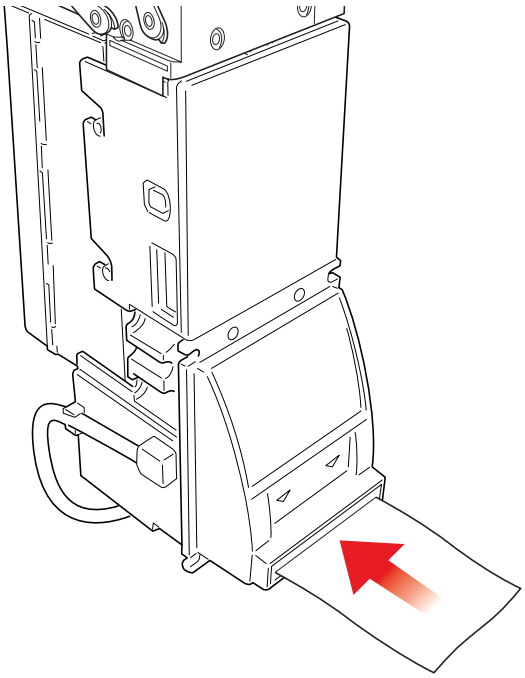
- Whe the display LED is blinking, an error occurs in the RC-10 unit. After clearing the error, auto-load the bill. For details about error, refer to 7-7-1. LED Diagnostic Code.



2) Press the Auto-load Button and check the display LED is blinking (Auot-loading Mode).



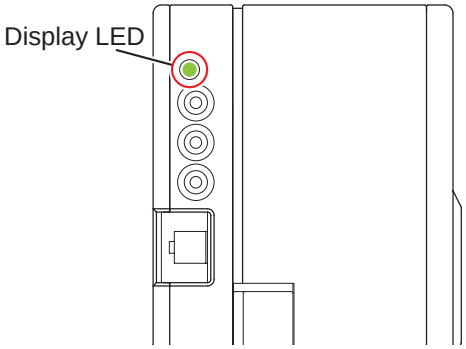
3) Insert a bill from DBV-301-SU unit's bill insertion slot and auto-load the bill to the RC-10 unit.



7-6-4. Stacking Bills

When stacking the bill in the RC-10 unit to the DBV-301-SU unit's Cash Box, follow the instruction as shown below.

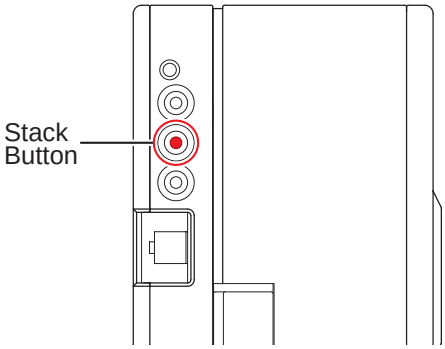
1) Check the RC-10 unit's display LED lights.

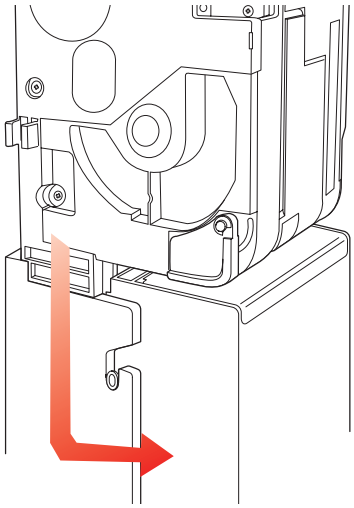


Note

- Whe the display LED is blinking, an error occurs in the RC-10 unit. After clearing the error, auto-load the bill. For details about error, refer to 7-7-1. LED Diagnostic Code.

2) Press the Stack Button. One bill in the RC-10 unit will be stacked to the Cash Box in pressing the button once.

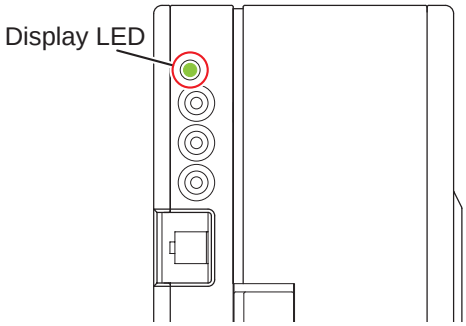




7-6-5. Dispensing Bill

When dispensing a bill from the RC-10 unit compulsorily, follow the instruction as shown below.

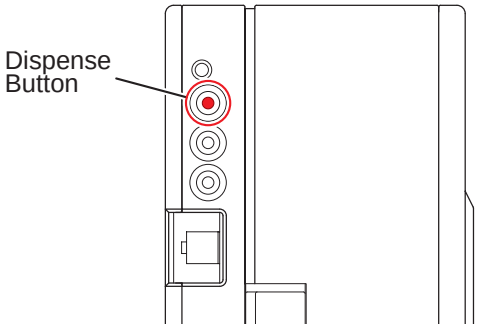
1) Check the RC-10 unit's display LED lights.

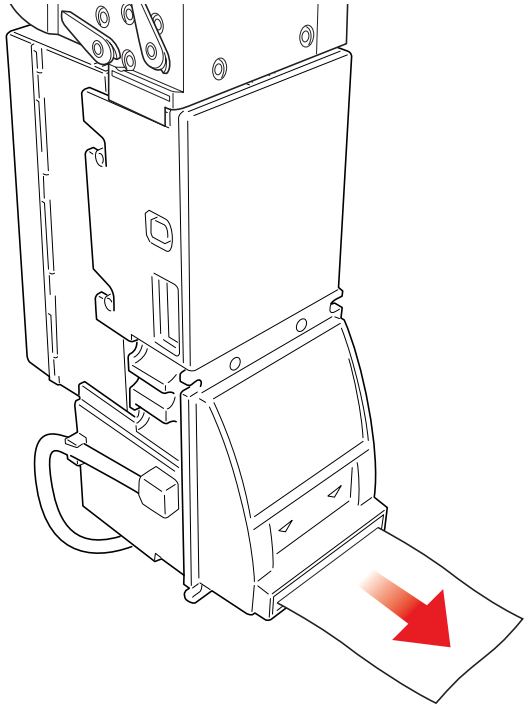


Note

- Whe the display LED is blinking, an error occurs in the RC-10 unit. After clearing the error, auto-load the bill. For details about error, refer to 7-7-1. LED Diagnostic Code.

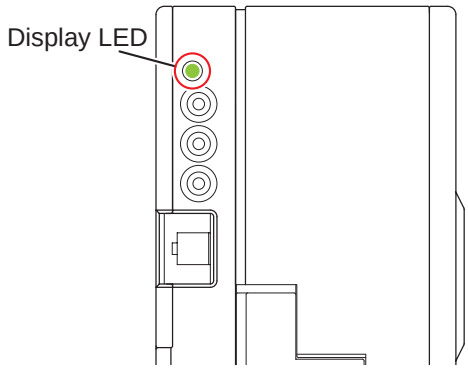
2) Press the Dispense Button. A bill in the RC-10 unit is despensed from the bill insertion slot in pressing the button once.



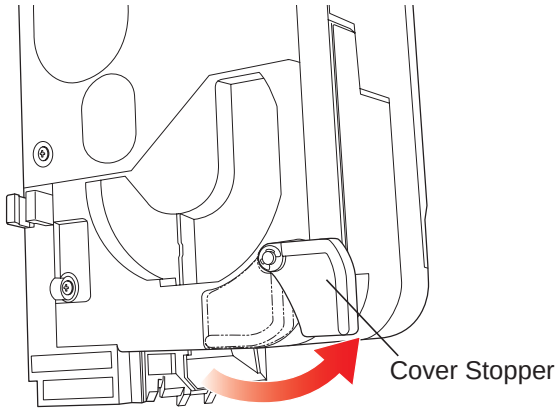


7-6-6. Clearing JAM Bill

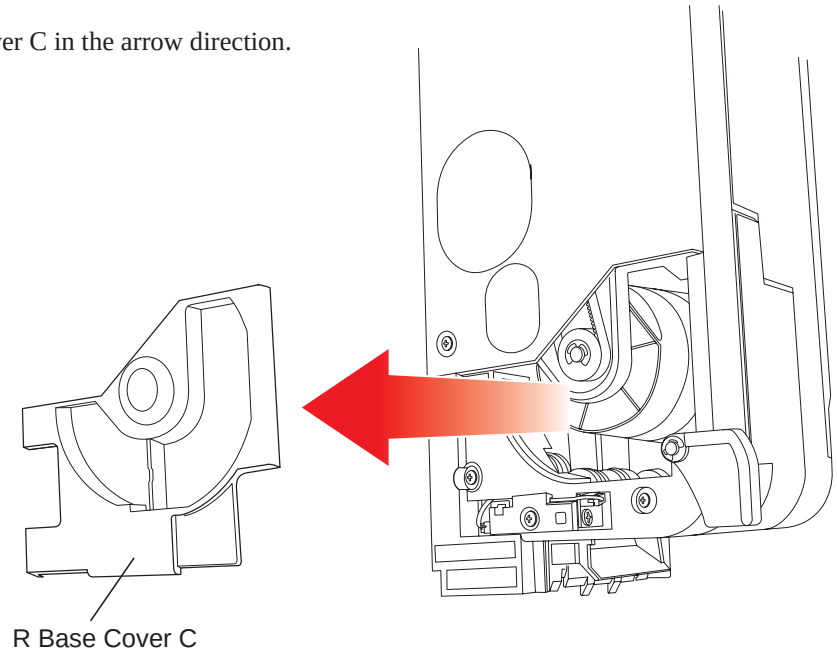
When a jammed bill occur and the Display LED is blinking, Clear the error following the instruction as shown below.



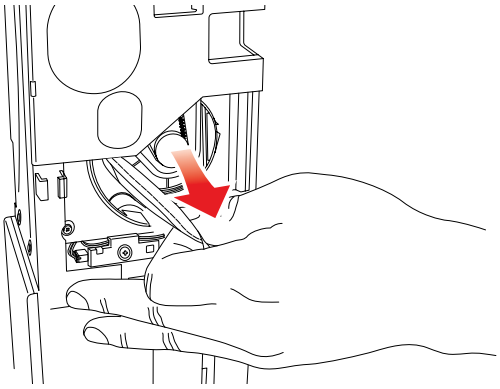
1) Rotate the Cover Stopper in the arrow direction.



2) Remove the R Base Cover C in the arrow direction.

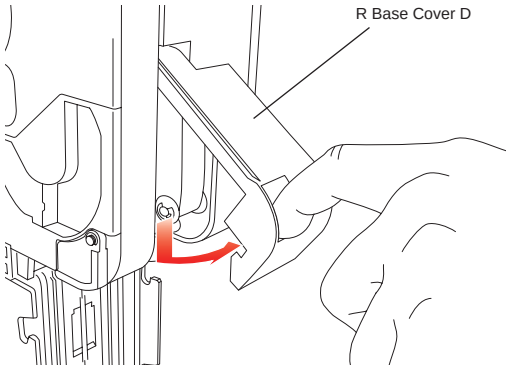


3) Remove the jammed bill in the arrow direction.

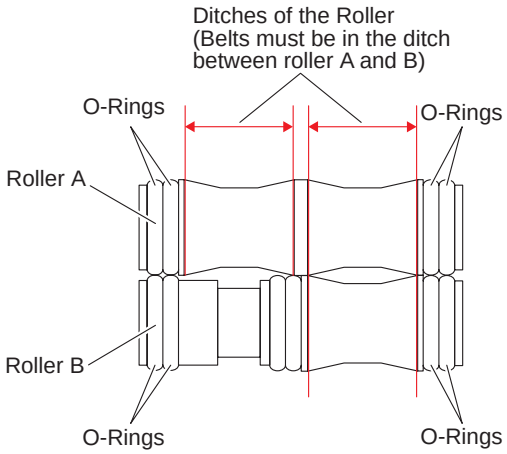


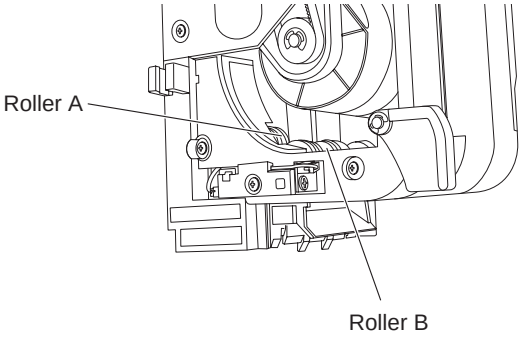
- **Be sure not to take out the belt together when takeing out the bill.**

4) Remove the Cash Box. Pull up the R Base Cover D in the arrow direction and check the belts is in the ditch between the Roller A and B (the belt is not on the O-rings).



- **If the belt is not set at the gap between the roller A and B, a jammed bill occurs again at the time of dispensing. For position of the belts, refer to the diagram as shown below.**





7-7. Diagnostic Code and Wiring Diagram

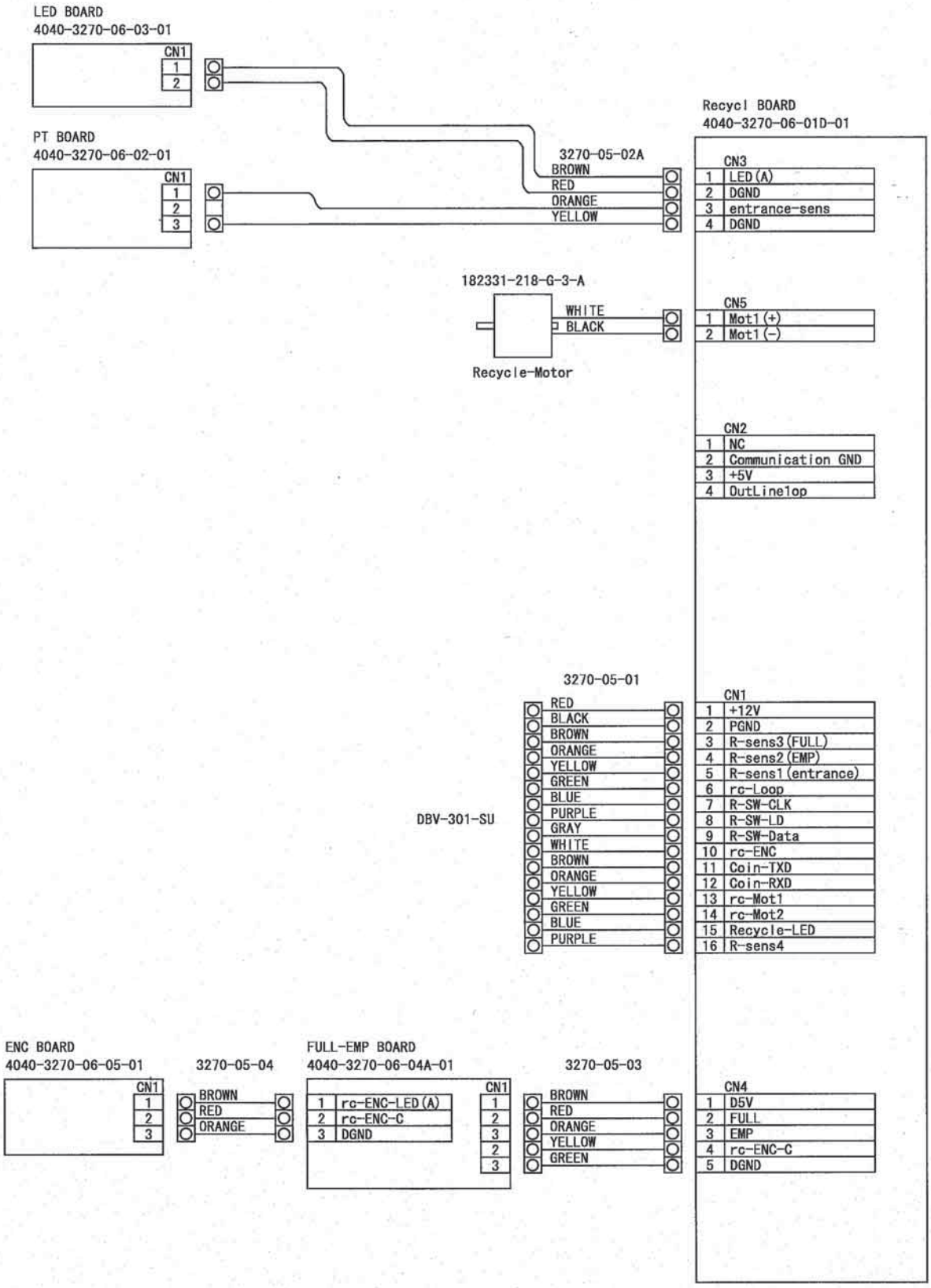
7-7-1. LED Diagnostic Codes

When the Display LED is blinking, an error occurs in the RC-10 unit. Clear the error refering the following chart.

Display LED	Code *1	Discription
Solid	-	State that can be operated
	-	Initial processing and state of acceptor error
1	WARNING	Recycler FULL
2	ABN	Recycler JAM (Initial Processing)
3	ABN	Recycler JAM (Dispensing)
4	ABN	Recycler JAM (Stacking)
5	ABN	Recycler Motor Speed Error
6	ABN	Recycler Motor Lock Error
7	ABN	Recycler Sensor Error (Enterance)
8	ABN	Recycler Sensor Error (Empty)
9	ABN	Recycler Sensor Error (FULL)
10	-	Reserved
11	-	Reserved
12	-	Reserved
13	ABN	DBV-301-SU Feed Motor Speed Error
14	ABN	Unit Error
15	ABN	Communication Error

*1 WARNING : Stacking operation is impossible.
ABN : Taking and dispensing operation are impossible.

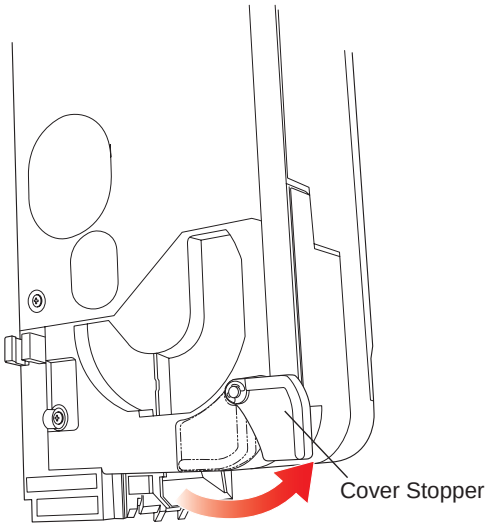
7-7-2. Wiring Diagram



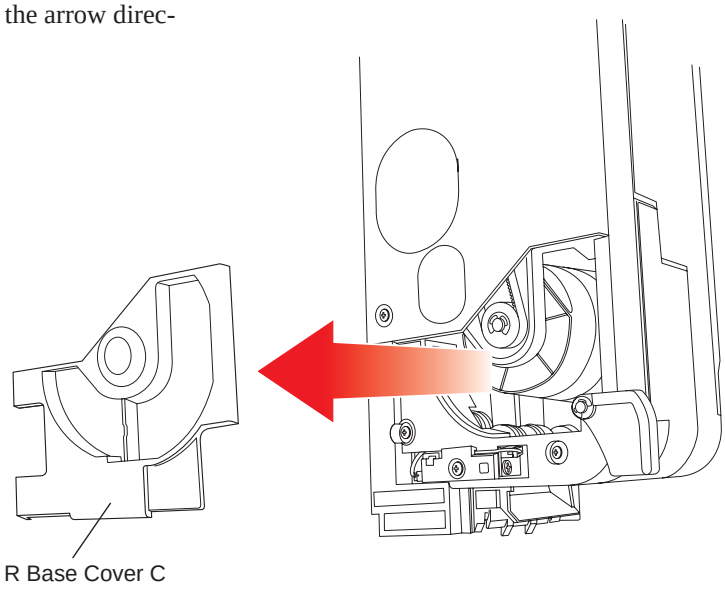
7-8. Disassembly Instruction

7-8-1. Removing Side Cover

1) Rotate the cover stopper in the arrow direction.

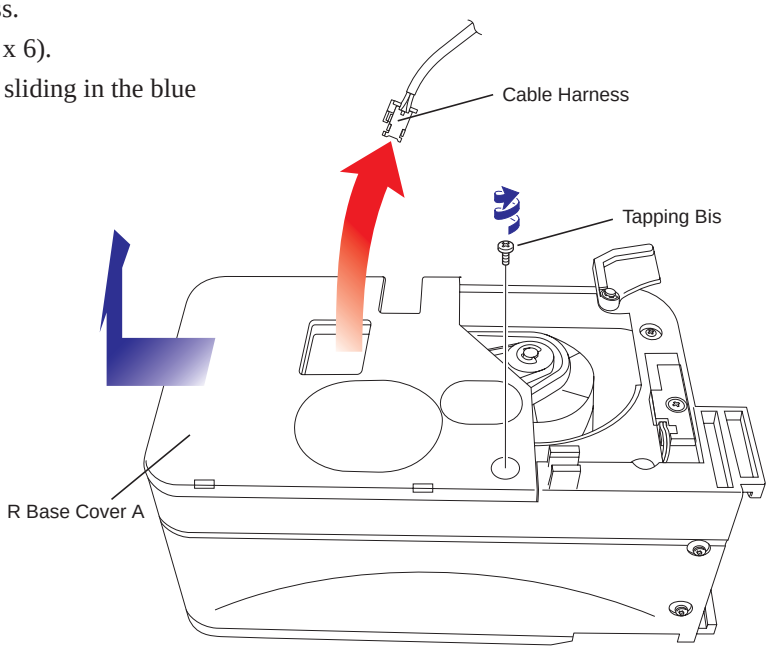


2) Remove the R Base Cover C in the arrow direction.

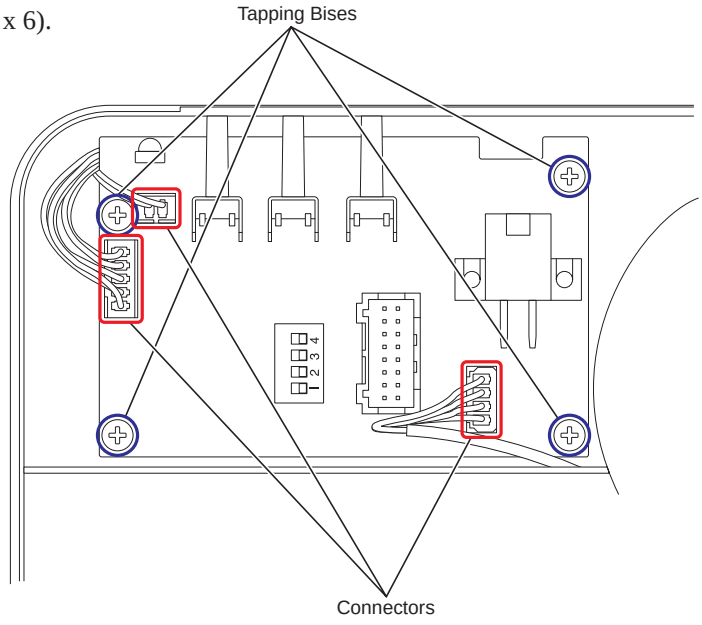


7-8-2. Changing Recycle Board

1) Disconnect the Cable Harness.
2) Remove a tapping bis (M2.6 x 6).
3) Remove the R Base Cover A sliding in the blue arrow direction.

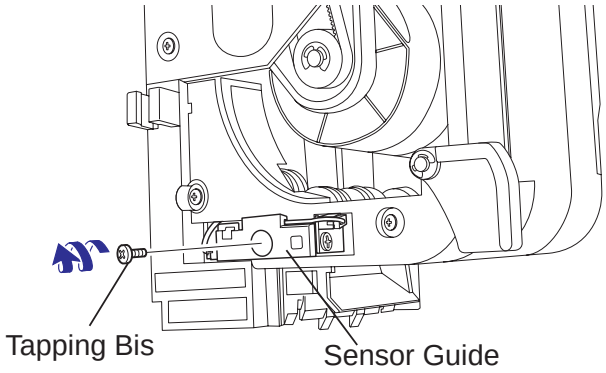


4) Disconnect three connectors from the RECY-CLER board.
5) Remove Three tapping bises(M2.6 x 6).
6) Remove the RECYCLER board.

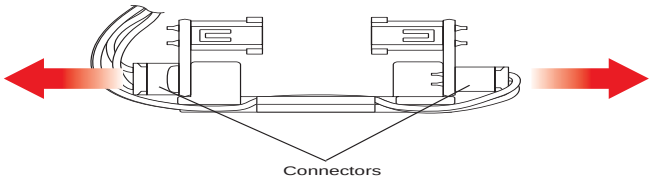


7-8-3. Changing PT Board/LED Board

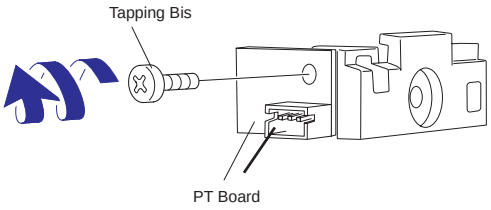
1) Removing a tapping bis (M2.6 x 6) that is holding the sensor guide.

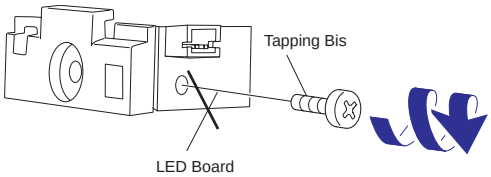


2) Disconnect two connectors on both sides of the sensor guide.



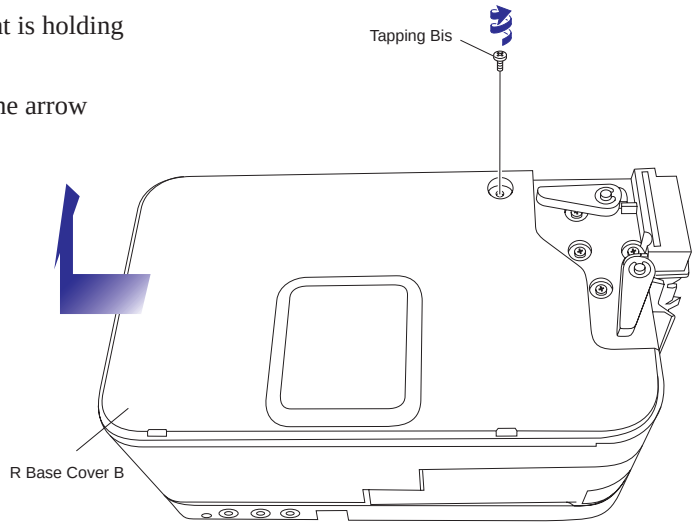
3) Remove the tapping bises (M2.6 x 6) that is holding the PT and LED boards.



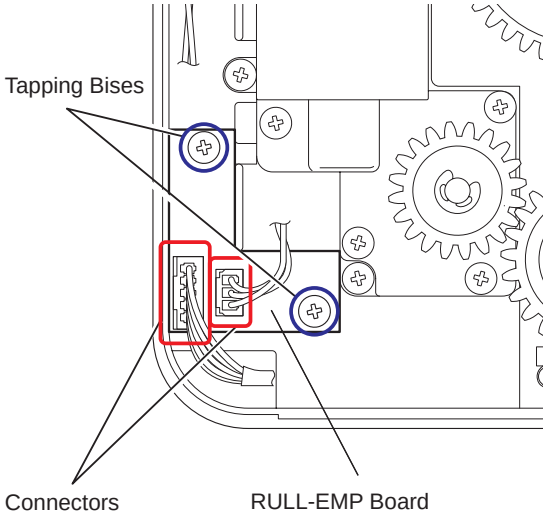


7-8-4. Changing Motor Board and Motor Unit

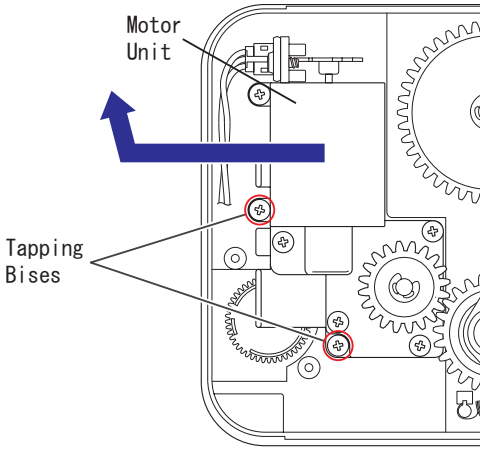
1) Remove the tapping bis (M2.6 x 6) that is holding the R Base Cover B.
2) Remove the R Base Cover sliding in the arrow direction.



3) Disconnect two connectors on the FULL-EM board.
4) Remove two tapping bises (M2.6 x 6) and remove the FULL-EM board.



5) Remove two tapping bises (M2.6 x 6) that is holding the motor unit.
6) Remove the motor unit sliding in the arrow direction.



7-8-5. Changing Encoder Board

1) Disconnect the connector on the ENC board.
2) Remove the tapping bis that is holding the ENC board.